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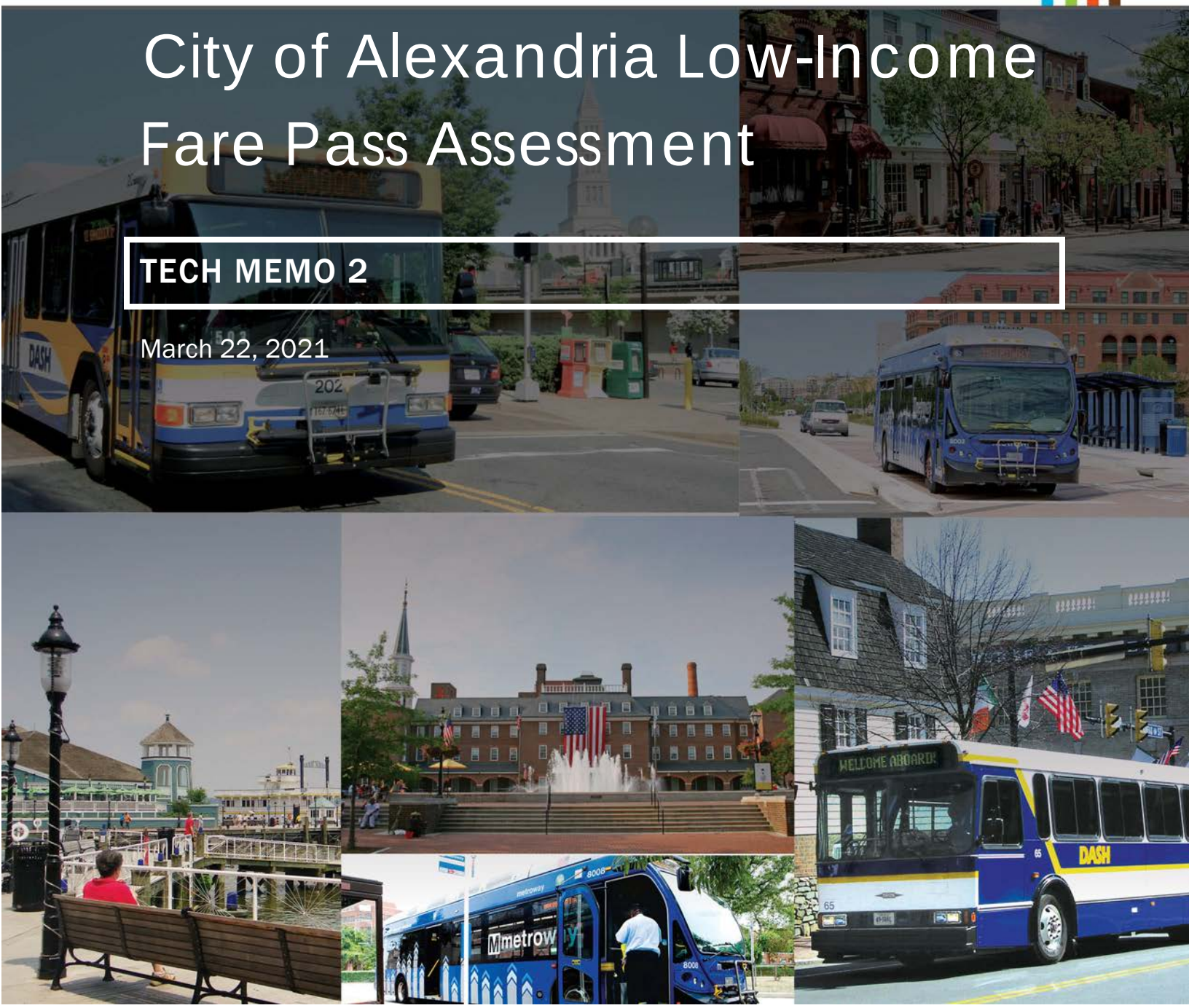
City of Alexandria Low-Income Fare Pass Assessment

TECH MEMO 2

March 22, 2021



Prepared for:

Metropolitan Washington Council of Governments

TLC

CITY OF ALEXANDRIA VIRGINIA

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EXECUTIVE SUMMARY

Transit fares are often a large cost burden for low-income riders, especially in areas with higher costs of living like the City of Alexandria, Virginia and Washington, DC. For many, this burden has increased because of the economic recession caused by the COVID-19 pandemic. To assist low-income residents, the City of Alexandria, in partnership with the Metropolitan Washington Council of Governments, is assessing the feasibility, benefits, and impacts of a low-income transit fare pass program in the City.

The first Technical Memorandum (Tech Memo) for this study described the existing population characteristics and transit ridership in Alexandria, summarized literature relevant to low-income fare reduction initiatives, reviewed case examples of other agencies implementing fare-free or reduced-fare programs, and summarized interviews with City staff about potential program administration. This Tech Memo builds on the first by exploring three program scenarios in more depth, providing a detailed analysis of the program administration, ridership projections, cost impacts, traffic impacts, and program evaluation for three potential program scenarios that were selected for further study. The three scenarios this Tech Memo evaluates:

- Scenario 1: Free fares for all riders on DASH services
- Scenario 2: Free fares for low-income residents on DASH and WMATA services (Metrobus and Metrorail)
- Scenario 3: Half-price fares and passes for low-income residents on DASH and WMATA services

For analysis purposes, low-income residents are defined as those from households that are eligible for the federal Supplemental Nutrition Assistance Program (SNAP); in most cases, meaning their households earn less than 130 percent of the federal poverty level (FPL).

Program Administration

Program administration costs and logistics would be minimal under Scenario 1, since DASH fares would be free for all, but are relevant in Scenarios 2 and 3. Under these two scenarios, DASH and the City of Alexandria Transportation and Environmental Services (T&ES) Department would be responsible for coordinating with WMATA to establish the program, working with vendors to program discounts, marketing the program, and conducting program evaluation. The City and DASH would also coordinate with: (a) the City of Alexandria Department of Community & Human Services (DCHS), which would verify program eligibility and issue fare cards or passes, (b) WMATA to negotiate and coordinate pass benefits and interagency payments, and (c) other community partners to assist with marketing and applications.

Regardless of which scenario is chosen, the City will need to create a marketing plan to inform the public about the program. Scenarios 2 and 3, in particular, will require marketing to ensure that eligible residents are informed about the program. In addition to DCHS informing people about their eligibility for the program, marketing to SNAP recipients could include coordinating with partner agencies to reach eligible populations; advertising on the radio, social media, or other community websites or newspapers; or in-bus announcements.

Ridership Projections

This Tech Memo projects ridership for a “Baseline Scenario,” as well as each program scenario for Fiscal Year (FY) 2022 through FY 2025. The Baseline Scenario represents projected ridership levels absent any fare programs or changes; this includes taking into account the changes in revenue hours resulting from the Alexandria Transit Vision (ATV) plan implementation, continued reductions in ridership due to the COVID-19 pandemic, and, starting in FY 2023, projected increases in ridership due to WMATA increasing the discount for those transferring between Metrorail and DASH or Metrobus. Ridership projections under the fare scenarios are based on the level of fare reduction (free or half-price), applicable or eligible population (all riders or low-income residents), and the services the fare program would cover (DASH or both DASH and WMATA). They include considerations such as riders switching between DASH, Metrobus, and Metrorail depending on relative prices. For all of these analyses, available literature and data on the results of other fare programs were used

to develop the methodology. **Table ES-1** shows projected ridership for all scenarios from FY 2022 to FY 2025. Scenario 1 would result in the largest ridership increases compared to the Baseline Scenario.

Table ES-1: Estimated Ridership on DASH, Metrobus, and Metrorail for All Scenarios, FY 2022–FY 2025

	FY 2022	FY 2023	FY 2024	FY 2025
Baseline Scenario				
Projected Ridership in the City (DASH + WMATA)	4,396,000	7,501,000	9,332,000	11,221,000
Scenario 1: Free fares for all DASH riders				
Projected Ridership in the City (DASH + WMATA)	4,920,000	8,372,000	10,429,000	12,479,000
Increase Rate over Baseline	11.9%	11.6%	11.8%	11.2%
Scenario 2: Free fares for low-income residents on DASH and WMATA services				
Projected Ridership in the City (DASH + WMATA)	4,648,000	8,153,000	10,139,000	12,153,000
Increase Rate over Baseline	5.7%	8.7%	8.7%	8.3%
Scenario 3: Half-price fares and passes for low-income residents on DASH and WMATA services				
Projected Ridership in the City (DASH + WMATA)	4,547,000	7,892,000	9,816,000	11,780,000
Increase Rate over Baseline	3.4%	5.2%	5.2%	5.0%

Cost Projections

Similar to the ridership projections, the cost projections include comparisons between anticipated costs under each scenario to the Baseline Scenario. Costs accounted for in the projections include: foregone fare revenue; the capital and operating costs of collecting fares; and administration and marketing costs, including the cost of fare media. Foregone fare revenue (and associated payments from the City to WMATA to account for it) is by far the largest driver of the costs under all three scenarios. The cost projections assume that most of the administration of the program under any scenario will be conducted as part of the regular duties of current City staff. The assumptions used to identify the amounts the City would reimburse WMATA for program participants' use of WMATA services under Scenarios 2 and 3 are based on available data and information and initial conversations; however, they are highly subject to additional negotiations. If the City were to implement Scenario 2 or 3 as a pilot, additional data would become available to inform an agreement regarding the level of transfer payments between the City and WMATA if the program were to be implemented on an indefinite basis. The analysis shows that ridership increases, even under Scenario 1, are not likely to increase DASH's operational expenses (i.e., adding more drivers, vehicles, or trips) to satisfy higher demand between FY 2022 and FY 2025. **Table ES-2** shows total costs for each scenario from FY 2022 to FY 2025. Scenario 2 is projected to have the highest costs, although the cost differential between Scenarios 1 and 2 is anticipated to decrease throughout the four-year period.

Table ES-2: Total Cost by Scenario, FY 2022–FY 2025

Costs	FY 2022	FY 2023	FY 2024	FY 2025
Baseline Scenario (Cost of Collecting Fares)	$449,000	$466,000	$483,000	$498,000
Scenario 1: Free fares for all DASH riders	$2,639,000	$3,921,000	$4,970,000	$5,521,000
Scenario 1: Net Increase over Baseline	**$2,190,000**	**$3,455,000**	**$4,487,000**	**$5,023,000**
Scenario 2: Free fares for low-income residents on DASH and WMATA services	$3,972,000	$6,067,000	$6,390,000	$6,570,000
Scenario 2: Net Increase over Baseline	**$3,523,000**	**$5,601,000**	**$5,907,000**	**$6,072,000**
Scenario 3: Half-price fares and passes for low-income residents on DASH and WMATA services	$1,785,000	$2,517,000	$2,656,000	$2,737,000

Costs	FY 2022	FY 2023	FY 2024	FY 2025
Scenario 3: Net Increase over Baseline	**$1,336,000**	**$2,051,000**	**$2,173,000**	**$2,239,000**

While Scenario 1 would only apply to the DASH system (as opposed to both DASH and WMATA services), it would provide a benefit to significantly more individuals than Scenarios 2 and 3. All DASH system riders would benefit from Scenario 1, with the benefit being accessible to the more than 33,000 City residents with household incomes below 200 percent of the federal poverty level. By contrast, that the calculations assume that 8,425 SNAP-participating individuals would receive the benefits of Scenarios 2 and 3; however, exact program participation levels are unknown, and could be be between 5,000 and 10,000 individuals.

Program Evaluation

Program evaluation will enable the City to determine whether the goals of the fare program are being met, what tangible benefits the program has achieved, and any changes that may be needed to the program. Tech Memo 1 includes a list of potential performance measures recommended for the City's use to assess the effectiveness of the program. A few key measures from the list include:

- The number of individuals using the program
- Ridership levels by program participants
- Total system ridership
- On-time performance
- Crowding levels
- Program cost (total and per low-income resident)
- Qualitative rider feedback on program impacts (from annual surveys)

Findings Summary

Any of the three scenarios would have significant benefits for low-income residents in the City of Alexandria. **Table ES-3** summarizes key advantages and disadvantages of each scenario, encompassing both quantitative and qualitative characteristics.

Table ES-3: Summary of Scenario Advantages and Disadvantages

Scenario	Advantages	Disadvantages
Scenario 1: Free fares for all on DASH	■ Easiest for the City to implement ■ Benefits the largest number of residents ■ Easiest to access for participants ■ Enhanced operational performance and reduced travel times ■ Lowest cost relative to number of residents (low-income and total) served ■ Greatest increase in ridership (11% in FY 2025) and associated environmental benefits	■ Relatively high net cost ($5.0 million in FY 2025) ■ Does not enhance affordability of WMATA services ■ May reduce revenue to WMATA ■ Offers less support for an integrated regional transit network
Scenario 2: Free fares for low-income residents on DASH and WMATA	■ Highest level of benefit for participants ■ Benefit provides free access to both DASH and WMATA services	■ Highest net cost ($6.1 million in FY 2025) ■ Fewer program beneficiaries compared to Scenario 1 ■ Greater administrative burden for the City and participants

Scenario	Advantages	Disadvantages
Scenario 3: Half-price fares and passes for low-income residents on DASH and WMATA	■ Provides more affordable access to both DASH and WMATA services ■ Lowest net cost ($2.2 million in FY 2025)	■ Lower level of benefit to participants ■ Fewer program beneficiaries compared to Scenario 1 ■ Greater administrative burden for the City and participants ■ Lowest increase in ridership (5% in FY 2025) and associated environmental benefits

INTRODUCTION

The City of Alexandria and the Metropolitan Washington Council of Governments (MWCOG) have identified goals that they would like to achieve by establishing a program that would make public transportation more affordable for the City of Alexandria's residents with low incomes. These goals are:

- Make transit more affordable for City residents who struggle to afford the cost of fares.
- Enhance equity and access to opportunities in the City.
- Maintain or enhance operational performance of the DASH system while maintaining or increasing bus operator safety.
- Minimize or eliminate the administrative burden and cost of current fare collection systems.
- Advance regional coordination to increase the affordability of public transportation for low-income residents throughout the region.

This memorandum builds upon the findings from Technical Memorandum 1 (Tech Memo 1), which established these goals for the program, estimated the number of residents within the City of Alexandria that would be eligible for a reduced-fare or fare-free transit program, described findings from a literature review, and identified lessons learned from existing reduced fare and fare-free programs at transit agencies across the United States. It also identified three affordable fare scenarios for the City (described below) based on a comprehensive view of the advantages and considerations of various potential fare program options. This memorandum estimates the expected ridership and cost implications of these three selected scenarios.

SCENARIOS FOR STUDY

The scenarios identified for further evaluation in Tech Memo 1 are shown in **Table 1.** They are free fares for all DASH riders (Scenario 1), free fares for City of Alexandria low-income residents on both DASH bus service and WMATA Metrobus and Metrorail services (Scenario 2), and half-price fares for City of Alexandria low-income residents on both DASH bus service and WMATA Metrobus and Metrorail services (Scenario 3).

Table 1: Fare Program Scenarios

Scenario	Applicable Agencies' Services	Eligibility Criteria and Supporting Documentation
Scenario 1: Free fares for all	DASH	N/A
Scenario 2: Free fares for low-income residents	DASH, WMATA	Ability to prove participation in SNAP or TANF programs
Scenario 3: Half-price fares and passes for low-income residents	DASH, WMATA	Ability to prove participation in SNAP or TANF programs

Program Design

Scenario 1 would entail elimination of fare collection on DASH buses. Some marketing would be required to inform residents of this change, but there would be no other administrative costs induced. Scenario 2 requires coordination with the City of Alexandria Department of Community & Human Services (DCHS). In this scenario, DCHS would offer all SNAP participants a monthly unlimited pass that would be downloadable to DASH's mobile app (or available via a SmarTrip® card provided at the request of the participant). The scenario assumes the City would reimburse WMATA a fixed amount for each pass distributed, with the understanding that some participants will use more services, and some will use fewer. The price of each monthly pass would

be subject to negotiation (and if the program were to initially be rolled out as a pilot, there would be additional data to inform the price). Under Scenario 3, DCHS would provide all SNAP recipients with a half-price discount that would be downloadable to DASH's mobile app (or on a SmarTrip® card at the request of the participant). The half-price discount would apply both to monthly unlimited passes and single-ride fares. The City would be responsible for paying WMATA for half of the costs of the passes and fares purchased using this discount.

Program Participants

Under Scenario 1, all residents in the City of Alexandria, and anyone riding DASH, would benefit from the program. There are 18,100 City residents over the age of four (the threshold for paying a DASH fare) from households with incomes at or below 130 percent of FPL, the threshold for low-income in this study, and over 33,000 City residents earing at or below 200 percent of the FPL. In Scenarios 2 and 3, low-income residents are defined as those individuals that are eligible for SNAP, or any other more restrictive federal financial assistance programs such as Temporary Assistance for Needy Families (TANF). In general, SNAP recipients' gross household incomes must be at or below 130 percent of FPL, with some exceptions. Deductions for basic expenses, and additional criteria related to available financial resources are also considered in assessing SNAP eligibility.[1] Because SNAP has the least restrictive criteria of all of the major financial assistance programs available to City residents, using SNAP eligibility guidelines enables the City of Alexandria's fare program to apply to more low-income individuals while streamlining the program's administration.[2]

Under Scenarios 2 and 3, current SNAP benefit recipients in the City of Alexandria above the age of four are used as a proxy for the number of program participants (8,425). Because Virginia excludes vehicle ownership in considering whether someone is eligible to receive SNAP benefits,[3] it is likely that some SNAP recipients travel by vehicle rather than using transit and would not elect to participate in the City's fare program.[4] On the other hand, it is also possible that the ability to receive free or reduced transit fares could induce some individuals to sign up for SNAP benefits to take advantage of the fare program as well, as there are currently over 8,000 City residents who qualify for SNAP but do not receive the benefit. (SNAP participation levels mirror the state of the economy; data from July 2020, during the recession, were used for this analysis. No changes in the number of program participants between FY 2022 and FY 2025 were assumed.) To avoid underestimating the program's cost implications under Scenarios 2 and 3, this analysis assumes that all SNAP recipients will participate in the fare program, after a phase-in period in the first year. It is therefore possible that the program costs could be lower than estimated in this analysis, or that the City could, within the assumed budget, extend the benefit to more individuals. It is also possible that the reimbursement agreement between the City and WMATA would only apply to passes actually used on the WMATA system; i.e., if someone received a pass from the City but did not ever use it on the WMATA system, for example, it would not "trigger" a payment to WMATA.

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1 For more information, see Virginia Department of Social Services, SNAP Income Chart, https://www.dss.virginia.gov/files/division/bp/fs/intro_page/income_limits/SNAP_Income_Chart_2020.pdf.

2 A recent study that reviewed reduced and free transit programs in California noted that having simple eligibility requirements (such as the same threshold as another program such as SNAP) reduces the potential for people who are eligible to be deterred from applying due to confusion or lack of clarity about eligibility. For more information, see University of California, Irvine, A Review of Reduced and Free Transit Fare Programs in California, January 2020, https://escholarship.org/uc/item/74m7f3rx.

3 Palacio, Victoria. Vehicle Asset Limits and License Suspensions: Disproportionate Impact on Low-Income Communities and Communities of Color. Center for Law and Social Policy Report, October 2016, https://www.clasp.org/sites/default/files/public/resources-and-publications/publication-1/vehicle-asset-limit-brief-final-draft-1.pdf.

4 Information regarding the percentage of SNAP recipients that have access to personal vehicles is not available, nor is it known how frequently they drive or whether vehicle-owning SNAP recipients use transit and would therefore be likely to participate in the fare program.

PROGRAM ADMINISTRATION

Program Administration Roles under Scenarios 2 and 3

Program administration considerations primarily apply to Scenarios 2 and 3, given that these two scenarios require eligibility certification and coordination between DASH, the City's Department of Community & Human Services (DCHS), and WMATA. **Table 2** shows likely roles in program implementation, including both City employees and external partners, and their key responsibilities. Some tasks such as the marketing campaign establishment will occur once at startup, whereas other tasks will be completed regularly, infrequently, or on an annual basis as part of staff duties. All proposed administrative responsibilities in **Table 2** will be conducted within the scope of the employees' regular duties except for some marketing-related tasks, which have been incorporated into the cost estimates.

Table 2: Program Roles and Responsibilities under Scenarios 2 and 3

Agency	Main Responsibilities
City of Alexandria Transportation and Environmental Services (T&ES) Department and DASH	■ Coordination with WMATA to establish the program ■ Working with vendor to program discounts into DASH Bus App ■ Preparing a marketing plan involving partner agencies ■ Marketing the program to the public ■ Conducting program evaluation (including annual surveys) and reporting results to decision-makers
City of Alexandria Department of Community & Human Services (DCHS)	■ Marketing the program to eligible clients ■ Verifying program eligibility ■ Issuing SmarTrip® cards in-person and through the mail ■ Providing customer service function for the program (answering questions, assisting with lost or stolen cards, etc.) ■ Liaising with community partners
WMATA	■ Coordination with the City to develop program ■ Programming SmarTrip® cards and handling technology-related issues
Community Partners	■ Program marketing ■ Assisting with applications

The City, represented by T&ES, and WMATA would work together to establish the program, including reaching cost allocation agreements and identifying and implementing a work process for coding SmarTrip® cards for program participants and providing them to DCHS for distribution. DASH would also work with its vendor to program reduced fares and passes into the DASH Bus app. The City could utilize or build upon existing WMATA application forms for other reduced rate SmarTrip® cards to develop an application form.

Applicants would interface with DCHS for the eligibility verification and certification process. DCHS' staff of 25 benefits specialists and five supervisors already work with the over 4,000 households enrolled in SNAP. DCHS staff meet with clients two to three times annually, including a six-month interim report and an annual renewal meeting. The agency is therefore well-positioned to market the program to existing and qualifying applicants with little additional effort due to their frequent client contact, and to confirm whether participants are eligible to continue participating in the fare program on an annual basis.

To participate in the program, applicants would complete a standalone application on their own or with the assistance of their assigned DCHS benefits worker and provide documentation (likely already available) showing that they have participated in SNAP at some point within the last year. It is assumed that, for the purposes of keeping the administrative burden of the program low (at least as the program is initially implemented), participation in SNAP or another federal financial assistance program with even stricter income limits (e.g., TANF) would be a prerequisite to participate in the fare program. Over time, the City could

reevaluate whether it would like to expand eligibility and/or "decouple" program eligibility from SNAP or TANF participation.

On an ongoing basis, DCHS employees would also maintain program records and issue (in person and by mail) mobile app codes or SmarTrip® cards to program participants. As the agency already sends documents and cards via mail, it would be reasonably simple to include mobile app code information or SmarTrip® cards when they send materials to participants. In the long-term, this process could be further streamlined for applicants already receiving benefits by rolling it into the State of Virginia's CommonHelp portal. Once certified, DCHS could issue a SmarTrip® card or mobile app code valid for free or discounted fares.

If a program participant no longer qualifies for SNAP, The City would inform WMATA to remove the benefit from the SmarTrip® card. If the participant used the DASH Bus app, DASH would notify its vendor to withdraw the benefit from the app user. One DCHS staff member would serve as the primary program contact to internal and external parties, including potential applicants, interested partner organizations, and internal stakeholders, to answer questions about the program and coordinate with T&ES staff. Because DCHS already handles application review and certification within the course of regular meetings with clients, it is not anticipated to increase existing workloads extensively to undertake certification for a fare-free or discounted pass program.

T&ES and DASH employees will also have responsibility for monitoring the program on an ongoing basis. They will collaborate with DCHS on an as-needed basis on program administration, and with WMATA on broader initiatives such as establishing and implementing fare capping. DASH and T&ES employees will coordinate to conduct annual program surveys and conduct program evaluation. In most cases, there will be limited marginal costs to gather data for program evaluation since many data are already be collected (e.g., ridership). However, surveys will help gather additional information on rider satisfaction with the program, transit usage among participants, and program performance, as described in more detail below. Some labor hours will be necessary for development of surveys, as well as ongoing efforts to distribute and collect surveys each year, analyze the findings, and conduct reporting.

Marketing

The City can pursue a variety of marketing approaches for the fare program (under any of the three scenarios). It is assumed that a free fare for all on DASH program (Scenario 1) would require less marketing than programs targeted to individuals with low incomes, since this scenario just requires a rider to board the bus without any additional targeting or certification required; however, making the fare changes known to the public would be beneficial. For Scenarios 2 and 3, City staff from various departments can take a more active role in promoting the program; for DCHS, for example, this would occur by introducing it to SNAP benefit recipients and assisting clients with the application process. The City also has an outreach coordinator that could market the program to City residents.

Aside from efforts to market the program to residents receiving or applying for SNAP benefits, there is also a large portfolio of external-facing marketing methods from which to choose. In addition to paid advertising in local media outlets, the City could consider coordination with partner agencies to amplify messaging through each agency's social media accounts and mailing lists and utilizing communication methods that the City already uses to communicate with residents. As there are many variables that influence the cost of marketing, including the number of readers or listeners and the time of day and competition, the City would want to tailor its methods to reach target populations. Some paid advertising methods include:

- Local radio and newspaper ads, including Spanish-language media.
- Social media and other online ads.
- Ads on community websites and newspapers.

The City may also explore lower-cost, in-house options as well as earned media. Some lower cost advertising methods include:

- Targeted outreach to Northern Virginia Community College and other educational institutions in the City to inform to college-age and older students about the program. Many students have low incomes and some experience food insecurity.[5]
- Targeted outreach to major employers.
- Social media posts on YouTube, Facebook, Twitter, and Instagram by the City, DASH, and partner organizations (Northern Virginia Transportation Commission, MWCOG, Commuter Connections, etc.).
- Email announcements/eNewsletters sent to City, DASH, and partner agencies' mailing lists.
- Updates on the City and DASH's webpages.
- Press releases and a press event.
- In-bus announcements, posters with QR codes, and/or print brochures.
- Bus stop ads.
- Push messages through the DASH Bus App/rider alerts/City messaging system.
- Messages sent to registered SmarTrip® card users.

In addition, the City could engage community organizations serving targeted populations such as libraries, schools, churches, and other community, charitable, or non-profit groups to help spread the word. Community-based organizations could also help applicants complete applications on an as-needed basis. In the long-term, the City could explore having select community partners assist with the program enrollment process – an arrangement that has seen some success for similar programs in Minneapolis and Los Angeles.

RIDERSHIP PROJECTIONS

Studies show that fare reduction programs draw new riders to transit and incentivize existing riders to increase their usage of transit. Changes in ridership behavior are generally proportionate to the level and extent of fare changes.[6] This section projects ridership under each of the three scenarios for FY 2022 through FY 2025. Understanding how ridership is likely to change is a critical part of planning and evaluating options for the City's fare program.

Methodology

The methodology used to project ridership under each of the scenarios is based on available service data for the DASH, Metrobus, and Metrorail systems; demographic information provided by riders through on-board surveys conducted by DASH and WMATA; and findings related to ridership increases and fare elasticities from the literature review and case examples outlined in Tech Memo 1. Metrobus and Metrorail ridership figures in this report are based on ridership (boardings) in the City of Alexandria only. The general methodology for developing ridership projections follows the steps below. Steps 1-3 outline the approach to developing a "Baseline" scenario, and steps 4-8 are repeated for each fare program scenario.[7]

1. Project future DASH ridership using FY 2019 ridership and adjusting for changes to system vehicle revenue hours (VRHs) in the future inclusive of the phased implementation of the ATV plan, assuming no changes to passengers per existing VRH and a slightly reduced passengers per VRH for new service hours. For WMATA Metrobus and Metrorail, use FY 2019 ridership data.
2. Subtract ridership according to post-pandemic recovery assumptions (described in more detail below).

[5] Melissa N. Laska, et. al, Addressing College Food Insecurity: An Assessment of Federal Legislation Before and During Coronavirus Disease-2019, October 2020, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7450237/.
[6] TCRP, Implementation and Outcomes of Fare-Free Transit Systems, 2012, https://www.nap.edu/download/22753.
[7] An alternative way to estimate the likely ridership changes due to the fare program is run the MWCOG's regional travel demand model with the fare changes programmed into it.

3. For FY 2023 and later, add expected increase in ridership from WMATA's proposed $2.00 discounted Metrorail transfer policy. In February 2020, WMATA estimated that this proposed policy would lead to an increase of 30,000 trips on the DASH system. These 30,000 trips have been scaled based on COVID-19 ridership recovery assumptions.
4. Identify the population to which the discount or free fares applies. For Scenario 1, this is all DASH riders. For Scenarios 2 and 3, this is low-income riders.
5. Adjust ridership to account for trips that are not influenced by price, which includes trolley ridership (as the trolley is already free) and pass ridership (as pass holders can already ride as much as they wish with no additional marginal cost).
6. Adjust for ridership that switches between modes due to price differences (e.g., from WMATA Metrobus to DASH when DASH is free in Scenario 1, or from bus to rail when rail becomes free for low-income riders in Scenario 2).
7. Apply expected growth in ridership due to free or discounted fares (to adjusted ridership amounts identified in step 6).
8. Calculate total ridership by adding the baseline ridership and expected increases in ridership.

The projected ridership tables later in this section list total ridership projections for each year as well as increase rates. The increase rates represent the increase over the Baseline Scenario, not year-to-year increases. Year-to-year changes in ridership depend on the level of service offered and how quickly ridership increases following the pandemic, but induced demand due to fare changes are expected to change in the first program year and remain at the higher level in future years.

Baseline Scenario Development with COVID-19 Ridership Recovery

Projecting the ridership impacts of the City's fare program requires identifying what the ridership would be absent any fare program being implemented. The Baseline Scenario is compared to the ridership calculated for Scenarios 1 through 3 to understand the impact due to the fare program. Identifying ridership under the Baseline Scenario is made more complex due to two major changes occurring in the City: (1) service changes and increases resulting from the Alexandria Transit Vision (ATV) Plan and (2) reductions in ridership due to the COVID-19 pandemic. In addition, WMATA's proposed policy to provide $2.00 reduced transfers between Metrorail and bus also adds some ridership to DASH in the Baseline for FY 2023 and subsequent years. The approaches to incorporating these two changes into the baseline scenario are each described below.

Alexandria Transit Vision (ATV) Expansion

The ATV proposes altered routes and expanded vehicle revenue hours (VRH) of service, shown in **Table 3**, slated to begin in FY 2022 and continue through longer-term changes in FY 2030.[8] Therefore, it is likely that DASH ridership will increase even without any change in fares. To approximate ridership increases due to expanded service, an estimated VRH of 13.0 was multiplied by additional planned VRH (above current service levels) to estimate ridership in each year, with planned VRH based on phased implementation of the ATV recommendations.

Table 3: Planned Vehicle Revenue Hours, FY 2022–FY 2025

	FY 2022	FY 2023	FY 2024	FY 2025
Planned Vehicle Revenue Hours	280,000	305,000	325,000	325,000

[8] FY22 Transit Development Plan (TDP), subject to change.

COVID-19 Pandemic Ridership Impact and Recovery

The COVID-19 pandemic has had a profound impact on public transit ridership across the country. Shutdowns and shifts to telework began in the spring of 2020; by fall 2020, there were early signs that public transit ridership was starting to recover. In April and May of 2020, DASH ridership dropped to 20 percent of FY 2019 ridership but rebounded to approximately 40 percent of pre-COVID ridership in July 2020 through November 2020. WMATA's Metrobus and Metrorail systemwide ridership dropped to as low five percent of previous year ridership in April and May of 2020.[9] Both rebounded more slowly than DASH ridership, remaining at around 12 percent until December 2020. In January 2021, Metrobus ridership had recovered to 29 percent of previous year ridership, while Metrorail remained at 11 percent.

In its last report from 2020, the Bureau of Transportation Statistics (BTS) found that 59 percent of households in the Washington-Arlington-Alexandria Metropolitan Statistical Area (MSA) had substituted some or all of their typical in-person work for telework due to the pandemic.[10] The national average was 37.5 percent. The ability to telework varied significantly by income, however, with only 13.8 percent of households earning less than $25,000 replacing in-person work with telework. For households earning between $100,000 and $149,999, 72 percent replaced at least one in-person job with teleworking.[11] These data suggest that a majority of low-income workers were unable to switch to telework during the pandemic and would therefore benefit from reduced or free fares in the COVID-19 recovery period as they continue to report for in-person work.

Some projections have been made about future public transit ridership in the post-pandemic recovery period. These projections tend to be tied to the state of the economy and consider how unemployment rates or job growth may impact ridership. A recent study by the American Public Transportation Association (APTA) estimated that it may take until 2025 for the economy to return to pre-pandemic ridership levels, which translates into lower ridership levels and reduced revenue for agencies in the coming years.[12] The report also mentions that post-pandemic ridership will be impacted by pandemic-induced, temporary work from home scenarios becoming permanent. However, there are differences by mode in how the COVID-19 pandemic has impacted transit ridership. The APTA report notes that buses lost lower percentages of riders compared to higher-priced commuter rail services (such as Metrorail) during the pandemic.[6]

Based on this body of research, post-pandemic recovery assumptions used in the ridership estimates are shown in **Table 4**. DASH bus ridership is expected to be at 50 percent of FY 2019 levels in FY 2022, following existing trends, and gradually return to 100 percent of pre-pandemic ridership by FY 2025 (before taking ATV-related changes into account). WMATA Metrobus and Metrorail projections are based on WMATA's quarterly ridership projections for FY 2022.[13] Similar to DASH, the analysis assumes Metrobus ridership will gradually return to 100 percent of pre-pandemic ridership by FY 2025. Rail ridership recovery is expected to lag behind bus ridership recovery, only reaching 75 percent of pre-pandemic ridership by FY 2025. This is due to the steeper declines experienced for this mode as a result of the pandemic, and is a service more likely to be used by higher-income workers whose work is more likely to be able to be done remotely on a more permanent basis.

Baseline Scenario Ridership

Table 4 provides the projected ridership levels for FY 2022 to FY 2025. These ridership figures are used as the comparison point for each fare program scenario. Projected DASH ridership is based on FY 2019 ridership, the change in revenue hours due to ATV implementation, COVID-19 ridership impacts, and induced ridership due to the proposed Metrorail transfer policy (assumed to go into effect in FY 2023), the latter of which has also

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[9] WMATA Bus Ridership Data Viewer: https://www.wmata.com/initiatives/ridership-portal/Bus-Data-Portal.cfm & Rail Ridership Data Viewer: https://www.wmata.com/initiatives/ridership-portal/Rail-Data-Portal.cfm

[10] BTS, Effects of COVID-19 on Travel Behavior, Accessed February 2021, https://www.bts.gov/effects-covid-19-travel-behavior.

[11] BTS, Effects of COVID-19 on Travel Behavior by Income Group, Accessed February 2021, https://www.bts.gov/effects-covid-19-travel-behavior-income-group.

[12] APTA, The Impact of the COVID-19 Pandemic on Public Transit Funding Needs in the U.S., January 2021, https://www.apta.com/wp-content/uploads/APTA-COVID-19-Funding-Impact-2021-01-27.pdf.

[13] WMATA FY2022 Operating Budget Work Session, February 25, 2021. https://www.wmata.com/about/board/meetings/board-pdfs/upload/3A-FY2022-Operating-Budget-Work-Session.pdf.

been scaled based on COVID-19 recovery assumptions. WMATA estimated a total 30,000 induced trips on DASH at pre-pandemic ridership levels. WMATA Metrobus and Metrorail projected ridership in the City of Alexandria is based on FY 2019 ridership adjusted for COVID-19 ridership impacts.

FY 2022 DASH ridership is expected to be nearly 2.3 million, while FY 2025 ridership is expected to grow to over 5.2 million. Metrobus ridership in the City of Alexandria in FY 2022 is expected to be nearly 1.5 million, and in FY 2025 it is projected to be 3.1 million, back to FY 2019 levels. Metrorail ridership in the City of Alexandria is expected to be 600,000 trips in FY 2022 and remain below FY 2019 levels through FY 2025.

Table 4: Projected Ridership Under the Baseline Scenario, FY 2022–FY 2025

	FY 2022	FY 2023	FY 2024	FY 2025
DASH				
Ridership (based on FY 2019 ridership levels and planned VRHs)	4,605,000	4,930,000	5,190,000	5,190,000
Expected ridership level due to COVID-19 pandemic (compared to FY 2019)	*50.0%*	*75.0%*	*90.0%*	*100.0%*
COVID-19 ridership impact	-2,303,000	-1,233,000	-519,000	-
Increase in DASH ridership due to WMATA's free transfers to/from Metrorail policy		23,000	27,000	30,000
Projected Ridership	**2,303,000**	**3,720,000**	**4,698,000**	**5,220,000**
WMATA Metrobus				
FY 2019 ridership in the City of Alexandria	3,136,000	3,136,000	3,136,000	3,136,000
Expected ridership level due to COVID-19 pandemic (compared to FY 2019)[14]	*46.8%*	*71.8%*	*86.8%*	*100.0%*
COVID-19 ridership impact in the City of Alexandria	-1,667,000	-883,000	-412,000	-
Projected Ridership in the City of Alexandria	**1,469,000**	**2,253,000**	**2,723,000**	**3,136,000**
WMATA Metrorail				
FY 2019 ridership in the City of Alexandria	3,820,000	3,820,000	3,820,000	3,820,000
Expected ridership level due to COVID-19 pandemic (compared to FY 2019)	*16.3%*	*40.0%*	*50.0%*	*75.0%*
COVID-19 ridership impact in the City of Alexandria	-3,196,000	-2,292,000	-1,910,000	-955,000
Projected Ridership in the City of Alexandria	**624,000**	**1,528,000**	**1,910,000**	**2,865,000**
Projected Ridership (DASH, Metrobus, Metrorail) in the City of Alexandria	**4,396,000**	**7,501,000**	**9,332,000**	**11,221,000**

Scenario 1: Free Fares for All on DASH

Under Scenario 1, DASH fares would be free for everyone, while Metrobus and Metrorail fares would remain the same. This means that DASH ridership would increase over baseline ridership because of free fares. The expected growth in ridership due to free fares is 32 percent, but this is applied only to a portion of ridership,

[14] FY 2022 expected ridership levels for WMATA services (46.8 and 16.3 percent of pre-pandemic ridership on Metrobus and Metrorail, respectively) are based on WMATA's FY 2022 budget projections.

excluding Trolley ridership, which is already free, and rides paid for with passes, which allow the user unlimited rides.

In addition, some Metrobus riders in Alexandria would likely choose to switch to DASH if they could complete their trip using a free service rather than a paid service. This is calculated by considering a portion of ridership on overlapping segments between DASH and Metrobus services. A small increase in Metrorail ridership has been added; it is assumed that free DASH fares would encourage and support transit use generally, as well as reduce the cost burden of other transit options. Assumptions used to create the ridership projection in Scenario 1 are listed in **Table 5**.

Table 5: Assumptions Used for Ridership Estimates Under Scenario 1

Description	Assumption	Source/Notes
Projected increase in (non-pass and non-Trolley) DASH ridership based on free fares	32.0%	Average growth rate based on Advance Transit, Corvallis, and DC Circulator fare-free pilot case studies.[15] **This is applied only to a portion of ridership**, excluding Trolley ridership (which is already free) and rides paid for with passes (which allow the user unlimited rides).
DASH Trolley ridership as a percentage of total DASH ridership	19.4%	From DASH FY 2019 ridership. This is used to determine how many rides are already free in the baseline, and therefore are not subject to the increase rate. This does not represent the percent of trolley rides once free fares are implemented, which may change.
Percentage of all DASH ridership paying with passes	15.6%	From DASH's 2013 Rider Survey; this includes: 7-day regional bus pass; senior/persons with disabilities 7-day regional bus pass; BRAC ID; bus-to-bus transfers; monthly DASH pass; rail-to-bus transfers; Trans Link card. This percentage is used to determine how many rides are already "free" (since pass holders can take unlimited trips) in the baseline, and therefore should not be subject to the increase rate.
Expected switch in ridership from Metrobus in the City of Alexandria to DASH if DASH were free but Metrobus were not	2.9%	Metrobus ridership along shared/overlapping corridors was calculated by summing ridership at stops along Duke Street and along Seminary Road between Beauregard St. and the hospital (which will still have some overlapping Metrobus and DASH routes under the ATV bus network) and identified to be 5.7 percent of all Metrobus ridership in the City. The analysis assumes that only 50% of riders at these stops would switch from Metrobus to DASH. Some riders' trips can be completed with either service given the high number of destinations in the corridor (hospital, dense housing, commercial destinations, Mark Center) and overlapping nature of some routes beyond the segment.
Estimated increase in Metrorail ridership in the City of Alexandria if the DASH system were free to ride	5.0%	Making DASH fares free will make riding the bus easier for everyone, supporting transit ridership in general and reducing cost burden, leading to a modest increase in Metrorail ridership.

[15] TCRP, Implementation and Outcomes of Fare-Free Transit Systems, 2012, https://www.nap.edu/download/22753.

Table 6 shows expected ridership for each service provider for FY 2022 to FY 2025 under Scenario 1. DASH's expected ridership increases from 2.8 million in FY 2022 to 6.4 million in FY 2025. This represents an increase in ridership from the baseline of 23.1 percent for each year. Metrobus is expected to lose 2.9 percent of its ridership in the City, as it is assumed that some riders will switch to free DASH service. Metrorail ridership is expected to increase, since free fares will encourage more transit usage generally and because Alexandria residents (of all income levels) will save money on the bus that they could use for more expensive transportation (i.e., similar to the way free bus trips for riders connecting to rail service would be expected to increase transit ridership). Overall, ridership in Alexandria on all three services is expected to increase from 4.9 million in FY 2022 to 12.4 million in FY 2025 and would increase about 11.2 percent compared to the Baseline Scenario.

Table 6: Projected Ridership for Scenario 1, FY 2022–FY 2025

	FY 2022	FY 2023	FY 2024	FY 2025
DASH				
Baseline Scenario Ridership	2,303,000	3,720,000	4,698,000	5,220,000
Switch from Metrobus to DASH	42,000	64,000	78,000	89,000
Expected increase in ridership because of free fares	493,000	795,000	1,002,000	1,115,000
Projected DASH Ridership	**2,837,000**	**4,579,000**	**5,778,000**	**6,424,000**
Increase Rate over Baseline	**23.2%**	**23.1%**	**23.0%**	**23.1%**
WMATA Metrobus				
Baseline Ridership	1,469,000	2,253,000	2,723,000	3,136,000
Switch from Metrobus to DASH	-42,000	-64,000	-78,000	-89,000
Projected Metrobus Ridership in the City of Alexandria	**1,427,000**	**2,189,000**	**2,646,000**	**3,046,000**
Increase Rate over Baseline	**-2.9%**	**-2.8%**	**-2.8%**	**-2.9%**
WMATA Metrorail in the City of Alexandria				
Baseline Ridership	624,000	1,528,000	1,910,000	2,865,000
Assumed increase in Metrorail ridership	31,000	76,000	96,000	143,000
Projected Metrorail Ridership	**655,000**	**1,604,000**	**2,006,000**	**3,008,000**
Increase Rate over Baseline	**5.0%**	**5.0%**	**5.0%**	**5.0%**
Projected Ridership in the City of Alexandria (DASH, Metrobus, Metrorail)	**4,920,000**	**8,372,000**	**10,429,000**	**12,479,000**
Increase Rate over Baseline	**11.9%**	**11.6%**	**11.8%**	**11.2%**

Scenario 2: Free Fares for Low-Income Residents on DASH and WMATA

In Scenario 2, free fares would be available for low-income City residents on DASH and WMATA services. This scenario would lead to an increase in low-income ridership, while non-low-income ridership is unlikely to be affected. Low-income riders are assumed to increase their transit ridership by 50 percent when fares are free, with the assumed growth rate applied to low-income ridership after excluding the portion that is Trolley and pass ridership. Unlike Scenario 1, where the growth rate applied only to DASH services, this growth rate applies to low-income trips within the City across DASH, Metrobus, and Metrorail services.

Program participants are assumed to be SNAP recipients who live in the City of Alexandria. Induced ridership is scaled to program participation take-up, which is assumed to be 62.5 percent of participants in the first program year (i.e., one quarter of SNAP recipients are enrolled on the first day of each quarter throughout the first year of implementation) and full participation in subsequent years. Metrobus is expected to lose a portion of the ridership increase to Metrorail in one segment of the network where the two services substantially overlap, as the price differential between bus and rail will have been eliminated for program participants. Assumptions used to create the ridership projection in Scenario 2 are listed in **Table 7**.

Table 7: Assumptions Used for Ridership Estimates Under Scenario 2

Description	Assumption	Source/Notes
Percentage of DASH riders who are low-income	27.6%	Estimated from DASH's 2013 Rider Survey by comparing household income and household size to estimate the number of riders below 130% FPL
Percentage of Metrobus riders who are low-income within the City of Alexandria	24.9%	From 2018 Metrobus Survey; used average household size to estimate the number of riders below 130% of FPL
Percentage of Metrorail riders who are low-income within the City of Alexandria	5.8%	From 2016 Metrorail Survey, riders with income below $30,000
Projected ridership increase among program participants	50.0%	Extrapolated from Low-Income Transit Rider study in Boston; increase in ridership as the discount increases, but at slightly lower rate. **This is applied only to a portion of ridership**, excluding Trolley ridership (which is already free) and rides paid for with passes (which allow the user unlimited rides).
DASH Trolley ridership as a percent of total DASH ridership	19.4%	From DASH FY 2019 ridership. This is used to determine how many rides are already free in the baseline, and therefore are not subject to the increase rate. This does not represent the percent of trolley rides once free fares are implemented, which may change.
Percentage of DASH low-income ridership paying with passes	14.5%	From DASH's 2013 Rider Survey; this includes: 7-day regional bus pass; senior/persons with disabilities 7-day regional bus pass; BRAC ID; bus-to-bus transfers; monthly DASH pass; rail-to-bus transfers; Trans Link card This is used to determine how many rides are already "free" (since pass holders can take unlimited trips) in the baseline, and therefore are not subject to the increase rate.
Percentage of Metrobus low-income ridership paying with passes[16]	4.6%	From DASH's 2013 Rider Survey; this includes: 7-day regional bus pass; senior/persons with disabilities 7-day regional bus pass; bus-to-bus transfers

[16] For the purposes of this analysis, no low-income riders were assumed to use unlimited passes to ride Metrorail services.

Description	Assumption	Source/Notes
Expected switch in ridership from Metrobus to Metrorail if low-income riders could ride either service for free	0.6%	Metrobus ridership data by stop used in GIS to identify the percentage of all Metrobus boardings in the City that occur along the portions of the 10A and Metroway that overlap with Metrorail (2.3%). Assumed that 25% of these riders would switch to Metrorail. Many low-income riders choose buses over more-expensive rail services; it is likely some riders along the same corridor segments would take rail if there were no price differential.
Number of program participants (riders ages 5 and over)	8,425	Total SNAP participants (9,554) from the City of Alexandria Department of Community & Human Services (DCHS). The percentage of SNAP recipients who are four and under (who would ride for free) was estimated using U.S. Census Bureau Table B17001, ACS 5-year estimates (11.8%), which identifies the number of children per household by income level. This number assumes all SNAP participants over age four would participate in the program.
Program participation rate (take-up) in Year 1	62.5%	Assumes that one-quarter of participants are phased in at the beginning of each quarter of Year 1.
Program participant take-up in Years 2-4	100%	Assumes that all program participants would enroll in the first year.

Table 8 shows expected ridership for each service provider for FY 2022 to FY 2025 under Scenario 2. DASH ridership ranges from 2.4 to 5.7 million rides, with an overall increase in ridership of 9.1 percent. WMATA Metrobus ridership ranges from 1.5 to 3.5 million rides, with an increase in ridership of 11.7 percent. Metrorail is expected to experience a smaller increase in ridership, at 3.2 percent. This is due in part to the fact that relatively few low-income riders take Metrorail (likely due to both price as well as the locations where they live) and that many trips in the City cannot be made on Metrorail, which currently has only four stations in the City. Across all three providers, ridership is expected to increase by around 8.3 percent compared to the Baseline Scenario in FY 2025.

Table 8: Projected Ridership for Scenario 2, FY 2022–FY 2025

	FY 2022	FY 2023	FY 2024	FY 2025
DASH				
Baseline Scenario	2,303,000	3,720,000	4,698,000	5,220,000
Expected increase in ridership because of free fares for low-income riders	131,000	339,000	429,000	476,000
Projected DASH Ridership	**2,434,000**	**4,060,000**	**5,127,000**	**5,697,000**
Increase Rate over Baseline	**5.7%**	**9.1%**	**9.1%**	**9.1%**
WMATA Metrobus				
Baseline Ridership	1,469,000	2,253,000	2,723,000	3,136,000
Switch from bus to rail	-2,100	-3,200	-3,900	-4,500
Expected increase in ridership because of free fares for low-income riders	108,000	266,000	322,000	370,000
Projected Metrobus Ridership in the City of Alexandria	**1,575,000**	**2,516,000**	**3,041,000**	**3,501,000**
Increase Rate over Baseline	**7.2%**	**11.7%**	**11.7%**	**11.7%**

	FY 2022	FY 2023	FY 2024	FY 2025
WMATA Metrorail				
Baseline Ridership	624,000	1,528,000	1,910,000	2,865,000
Switch from bus to rail	2,100	3,200	3,900	4,500
Expected increase in ridership because of free fares for low-income riders	12,000	46,000	57,000	85,000
Project Metrorail Ridership in the City of Alexandria	**638,000**	**1,577,000**	**1,971,000**	**2,955,000**
Increase Rate over Baseline	**2.3%**	**3.2%**	**3.2%**	**3.1%**
Projected Ridership (DASH, Metrobus, Metrorail) in the City of Alexandria	**4,648,000**	**8,153,000**	**10,139,000**	**12,153,000**
Increase Rate over Baseline	**5.7%**	**8.7%**	**8.7%**	**8.3%**

Scenario 3: Half-Price Fares and Passes for Low-Income Residents on DASH and WMATA

In Scenario 3, eligible low-income residents could purchase half-price fares and passes for DASH, Metrobus and Metrorail. This scenario would lead to an increase in low-income ridership, while non-low-income ridership is expected to be unaffected. Low-income riders are assumed to increase their ridership by 30 percent when fares are half price. This growth rate is applied to low-income ridership excluding the portion that is Trolley and pass ridership. As with Scenario 2, this growth rate applies to low-income ridership across all DASH, Metrobus, and Metrorail.

Program participants are assumed to be SNAP recipients who live in the City of Alexandria. Induced ridership is scaled to program participation take-up, which is assumed to be 62.5 percent of participants in the first program year and full take-up in subsequent years. Metrobus is again expected to lose some ridership to Metrorail, since low-income riders are currently likely riding Metrorail less because of its higher cost but could ride Metrorail more if the cost of both services were discounted, which would decrease the cost differential between the two services. Assumptions used to create the ridership projection in Scenario 3 are listed in **Table 9.**

Table 9: Assumptions Used for Ridership Estimates Under Scenario 3

Description	Assumption	Source/Notes
Percentage of DASH riders who are low-income	27.6%	Estimated from DASH's 2013 Rider Survey by comparing household income and household size to estimate the number of riders below 130% FPL
Percentage of Metrobus riders who are low-income within the City of Alexandria	24.9%	From 2018 Metrobus Survey; used average household size to estimate the number of riders below 130% of FPL
Percentage of Metrorail riders who are low-income within the City of Alexandria	5.8%	From 2016 Metrorail Survey, riders with income below $30,000

Description	Assumption	Source/Notes
Projected ridership increase among program participants	30.0%	From Low-Income Transit Rider study in Boston[17]
DASH Trolley ridership as a percent of total DASH ridership	19.4%	From DASH FY 2019 ridership. This is used to determine how many rides are already free in the baseline, and therefore are not subject to the increase rate. This does not represent the percent of trolley rides once free fares are implemented, which may change.
Percentage of DASH low-income ridership paying with passes	14.5%	From 2013 DASH Rider Survey; this includes: 7-day regional bus pass; senior/persons with disabilities 7-day regional bus pass; BRAC ID; bus-to-bus transfers; monthly DASH pass; rail-to-bus transfers; Trans Link card This is used to determine how many rides are already "free" (since pass holders can take unlimited trips) in the baseline, and therefore are not subject to the increase rate.
Percentage of Metrobus low-income ridership paying with passes[18]	4.6%	From 2013 DASH Rider Survey; this includes: 7-day regional bus pass; senior/persons with disabilities 7-day regional bus pass; bus-to-bus transfers
Expected switch in ridership from Metrobus to Metrorail within the City of Alexandria when low-income riders can ride either for half-price	0.5%	Metrobus ridership data by stop used in GIS to identify the percentage of all Metrobus boardings in the City that occur along the portions of the 10A and Metroway that overlap with Metrorail (2.3%). Assumed that 20% of these riders would switch to Metrorail. Many low-income riders choose buses over more-expensive rail services; it is likely some riders along the same corridor segments would take rail if there were no price differential.
Number of program participants (riders ages 5 and over)	8,425	Total SNAP participants (9,554) from the City of Alexandria Department of Community & Human Services (DCHS). The percentage of SNAP recipients who are four and under (who would ride for free) was estimated using U.S. Census Bureau Table B17001, ACS 5-year estimates (11.8%), which identifies the number of children per household by income level. This number assumes all SNAP participants over age four would participate.
Program participant take-up in the Year 1	62.5%	Assumes that one-quarter of participants phased in at the beginning of each quarter of Year 1.
Program participant take-up in Years 2-4	100%	Assume that all program participants would enroll in the first year.

Table 10 shows expected ridership for each service provider for FY 2022 to FY 2025 under Scenario 3. DASH ridership is projected to increase from 2.3 million to 5.5 million trips across the four-year period, with an overall increase in ridership of 5.5 percent. Metrobus ridership increases from 1.5 to 3.3 million rides, with an increase in ridership of 7.1 percent compared to the Baseline Scenario. Metrorail is projected to experience a smaller increase in ridership, at 1.8 percent. Across all three providers, ridership is expected to increase around 5.0 percent.

[17] Rosenblum, J. 2019. How Low-Income Transit Riders in Boston Respond to Discounted Fares: A Randomized Controlled Evaluation. http://equitytransit.mit.edu/wp-content/uploads/2019/06/whitepaper_v8.pdf#page=5.

[18] For the purposes of this analysis, no low-income riders were assumed to use unlimited passes to ride Metrorail services.

Table 10: Projected Ridership for Scenario 3, FY 2022–FY 2025

	FY 2022	FY 2023	FY 2024	FY 2025
DASH				
Baseline Scenario	2,303,000	3,720,000	4,698,000	5,220,000
Expected increase in ridership because of discounted fares	79,000	204,000	257,000	286,000
Projected DASH Ridership	**2,381,000**	**3,924,000**	**4,956,000**	**5,506,000**
Increase Rate over Baseline	**3.4%**	**5.5%**	**5.5%**	**5.5%**
WMATA Metrobus				
Baseline Ridership	1,469,000	2,253,000	2,723,000	3,136,000
Switch from bus to rail	-1,700	-700	-900	-1,000
Expected increase in ridership because of discounted fares	65,000	160,000	194,000	223,000
Projected Metrobus Ridership in the City of Alexandria	**1,532,000**	**2,412,000**	**2,916,000**	**3,358,000**
Increase Rate over Baseline	**4.3%**	**7.1%**	**7.1%**	**7.1%**
WMATA Metrorail				
Baseline Ridership	624,000	1,528,000	1,910,000	2,865,000
Switch from bus to rail	1,700	700	900	1,000
Expected increase in ridership because of discounted fares	7,000	27,000	34,000	50,000
Projected Metrorail Ridership in the City of Alexandria	**633,000**	**1,556,000**	**1,944,000**	**2,916,000**
Increase Rate over Baseline	**1.4%**	**1.8%**	**1.8%**	**1.8%**
Projected Ridership (DASH, Metrobus, Metrorail) in the City of Alexandria	**4,547,000**	**7,892,000**	**9,816,000**	**11,780,000**
Increase Rate over Baseline	**3.4%**	**5.2%**	**5.2%**	**5.0%**

Ridership Summary

Table 11 summarizes the projected transit ridership in the City under each scenario. Scenario 1 shows the largest growth in ridership in each year, from 4.4 million rides in FY 2022 to 11.2 million rides in FY 2025, with an overall increase in ridership of 11.6 percent compared to the baseline in each year. Scenario 2 shows modest growth in ridership, with an overall 8.7 percent increase in ridership across all three providers. Scenario 3 has the lowest increase in ridership, with a total of 5.0 percent increase in ridership.

Table 11: Total Projected Transit Ridership in the City of Alexandria by Scenario for All Providers, FY 2022–FY 2025

	FY 2022	FY 2023	FY 2024	FY 2025
Baseline Scenario				
Projected Ridership in the City	4,396,000	7,501,000	9,332,000	11,221,000
Scenario 1				
Projected Ridership in the City	4,920,000	8,372,000	10,429,000	12,479,000
Increase Rate over the Baseline	11.9%	11.6%	11.8%	11.2%

	FY 2022	FY 2023	FY 2024	FY 2025
Scenario 2				
Projected Ridership in the City	4,648,000	8,153,000	10,139,000	12,153,000
Increase Rate over the Baseline	5.7%	8.7%	8.7%	8.3%
Scenario 3				
Projected Ridership in the City	4,547,000	7,892,000	9,816,000	11,780,000
Increase Rate over the Baseline	3.4%	5.2%	5.2%	5.0%

COST PROJECTIONS

This section projects the cost of implementing each of the fare program scenarios for FY 2022 through FY 2025 and explains the methods that were used to develop the cost estimates. Understanding the total cost of the program in each scenario is a critical part of planning and evaluating options for the City's fare program. All dollar figures have been rounded to the nearest thousand.

Methodology

Total costs for each scenario include, as applicable, the costs of fare collection, fare media, foregone fare revenue, payments from the City to WMATA, program administration and marketing, and additional operational costs. The costs of collecting fares include capital costs such as purchasing fareboxes as well as operating costs such as farebox maintenance. Fare media, in Scenarios 2 and 3, includes money paid to DASH's mobile app vendor for mobile app usage as well as SmarTrip® cards. Foregone fare revenue includes fares that DASH would have otherwise collected (under the Baseline Scenario). This section also analyzes whether ridership increases would affect operations to the extent that they would necessitate additional costs like extra drivers, buses, or trips.

The assumptions required to develop cost estimates are outlined below, along with the resulting total costs. Relevant assumptions include the level of participation in the program, cost agreements between the City of Alexandria and WMATA, anticipated fare media used, and ridership levels among program participants.

Fare Collection Costs

Fare collection costs include capital and operating expenses. Capital costs of collecting fares are associated with the infrastructure to charge fares, such as fareboxes, the development of the DASH bus app, and potential electronic fare validation readers. These capital costs are not recurring on an annual basis and occur infrequently; the annual amounts shown reflect averages when the costs are spread across the appropriate number of years (10 to 15 for most major capital expenses). This analysis assumes an inflation rate of three percent each year for capital costs. Operating costs include regional cost allocations, cash collection, and farebox maintenance, which are mostly fixed costs independent of ridership.

Table 12 shows fare collection costs broken into capital and operating costs. These costs are relevant under the baseline and Scenarios 2 and 3. Under Scenario 1, there would be no capital or operating costs for the City because fares would not be collected on DASH. Under Scenario 1, there would be savings of about $456,000 annually from not collecting fares.

Table 12: Projected Capital and Operating Costs of Collecting Fares, FY 2022[19]

Costs	FY 2022	FY 2023	FY 2024	FY 2025
Capital Costs				
Potential Electronic Validation for DASH Bus Mobile App	$53,000	$54,600	$56,300	$58,000
WMATA Next Generation Fare Boxes	$106,100	$109,300	$112,600	$115,900
Mobile App Development Fee	$15,900	$16,400	$16,900	$17,400
Total Capital Costs	**$175,000**	**$180,300**	**$185,700**	**$191,300**
Operating Costs				
Annual ATC Contribution to Regional SmarTrip® Budget	$63,700	$65,600	$67,500	$69,600
Farebox Cash Collection Contract	$53,000	$54,600	$56,300	$58,000
Regular Farebox Repair Costs	$31,800	$32,800	$33,800	$34,800
Farebox Maintenance Expenses	$119,400	$123,000	$126,700	$130,500
Total Operating Costs	**$267,900**	**$275,900**	**$284,200**	**$292,800**
Total Annual Capital and Operating Costs of Collecting Fares	**$443,000**	**$456,200**	**$469,900**	**$484,000**

Fare Media Costs

Vendor charges for passes and fares purchased via the DASH mobile app will vary depending on ridership and app usage. The cost analysis assumes a contractual fee of eight percent for the total fare and pass revenue that is purchased via the app, using fare revenue per paying passenger of $1.41 based on FY 2019 data and excluding trolley ridership which is free. Based on historic DASH Bus App usage data, it is estimated that approximately three percent of fares and passes will be purchased using the app during the study period. This fee will be 8 percent in the Baseline Scenario. Under Scenario 1, no fees would be collected, so this would not be applicable.

In Scenarios 2 and 3, program participants would receive a pass through the DASH Bus app, unless the participant requests a SmarTrip® card. This analysis assumes that 70 percent of participants would use the app and 30 percent would request a SmarTrip® card. DASH would negotiate the annual cost per pass downloaded to the app with moovel, the app provider. For the purposes of this analysis, this is assumed to be $4.00 per pass each year, but could be as low as $2.00 per pass, subject to negotiation. (If a price of $2.00 per pass downloaded were to be negotiated, this could result in over $11,000 in savings under Scenarios 2 and 3.) Each SmarTrip® card costs $2.00 and the City expects to replace 2,000 SmarTrip cards each year.

Table 13 shows the costs of fare media under each scenario. Under the Baseline Scenario, fare media expenses are between $6,00 and $14,000 per year, depending on ridership. Under Scenarios 2 and 3, fare media would cost between $32,000 and $37,000 each year.

[19] Costs shown throughout this memorandum have been rounded to the nearest $1,000.

Table 13: Projected Fare Media Costs, FY 2022–FY 2025

Costs	FY 2022	FY 2023	FY 2024	FY 2025
Baseline Scenario				
DASH Bus Mobile App Fees (8% of transactions)	$6,300	$10,200	$12,800	$14,300
Scenario 1				
DASH Bus Mobile App Fees	$0	$0	$0	$0
Scenario 2				
DASH Bus Mobile App Fees (non-program participants)	$4,100	$6,700	$8,400	$9,400
DASH Bus Mobile App Fees (program participants)	$23,600	$23,600	$23,600	$23,600
SmarTrip® cards	$5,100	$4,000	$4,000	$4,000
Total Fare Media Costs	**$32,800**	**$34,300**	**$36,000**	**$37,000**
Scenario 3				
DASH Bus Mobile App Fees (non-program participants)	$4,100	$6,700	$8,400	$9,400
DASH Bus Mobile App Fees (program participants)	$23,600	$23,600	$23,600	$23,600
SmarTrip® cards	$5,100	$4,000	$4,000	$4,000
Total Fare Media Costs	**$32,800**	**$34,300**	**$36,000**	**$37,000**

Foregone Fare Revenue and Payments to WMATA

Foregone fare revenue represents fare revenue that DASH would have collected in the baseline but is no longer collected after program implementation. For the scenarios that include free or reduced fares for the Metrorail or Metrobus systems, this analysis assumes that the City will reimburse WMATA, via direct payments for passes or fares, for WMATA's foregone revenue. The cost estimating approaches for foregone fare revenue under each scenario are described and shown in this section.

Baseline Scenario

The baseline scenario estimates how much fare revenue would be collected in FY 2022 to FY 2025 without any changes in fares. As shown in **Table 14**, DASH's FY 2019 average revenue per passenger trip of $1.14 was used to calculate estimated fare revenue based on projected, and no fare increases were assumed. The average revenue per passenger includes all ridership, including trolley ridership. This number is used to calculate projected passenger revenue in FY 2022–FY 2025 in the baseline, during which trolley ridership would be expected to represent about the same proportion of ridership as it does in FY 2019.

Table 14: Figures and Assumptions Used in Developing Cost Estimates for the Baseline

Description	Assumption	Source/Notes
DASH Passenger Fare per Passenger Trip	$1.14	DASH FY 2019 Passenger Fares and Ridership from NTD. Calculated from total ridership (including trolley ridership) and total passenger revenue.

Description	Assumption	Source/Notes
Fare changes on DASH, Metrobus, and Metrorail.	0%	No fare change plans are known. However, analysis does assume Metrorail's transfer discount is implemented.

Losses in fare revenue due to WMATA's Metrorail transfer policy are also incorporated beginning in FY 2023 and are scaled to COVID-19 recovery assumptions. **Table 15** shows projected DASH passenger fare revenue under the baseline scenario.

Table 15: Projected DASH Passenger Fare Revenue Under the Baseline Scenario, FY 2022–FY 2025

FY 2022	FY 2023	FY 2024	FY 2025
$2,623,000	$3,912,000	$4,961,000	$5,512,000

Scenario 1: Free DASH Fares for All

Under Scenario 1, DASH would not collect any fares, and would lose all projected fare revenue shown in **Table 15**. These amounts range from $2.6 million in FY 2022 to $5.5 million in FY 2025.

Scenario 2: Free Fares for Low-Income Riders on DASH and WMATA

Under Scenario 2, DASH would lose fare revenue from the portion of rides that would have been taken by paying program participants under the baseline scenario. This is determined by estimating the number of trips taken by low-income riders and multiplying by average passenger revenue per trip.

The City would also need to pay WMATA for passes that program participants would use to access Metrobus and Metrorail services at no cost. Program participation/take-up is assumed to be the equivalent of 62.5 percent average participation rate in the first program year (with additional participants being added to the program throughout the first year) and full participation in subsequent years. The number of program participants is multiplied by the total cost that the City would pay WMATA for a monthly pass, times 12 months for a yearly cost. As noted in **Table 16**, the cost of a pass is assumed to be $43.45 per program participant, which is based on a previous low-income pilot agreement and the fact that Alexandria residents would split their ridership between DASH and WMATA services. Under this scenario, all program participants would receive a pass giving them the ability to ride free, regardless of how much they may ride.

Table 16: Figures and Assumptions Used in Developing Cost Estimates for Scenario 2

Description	Assumption	Source/Notes
DASH Passenger Fare per Passenger Trip	$1.14	DASH FY 2019 Passenger Fares and Ridership from NTD. Calculated from total ridership (including trolley ridership) and total passenger revenue.
Percentage of Alexandria transit trips that happen on WMATA (Metrobus and Metrorail)	63.9%	Together, Metrobus and Metrorail ridership in Alexandria account for 63.9% of all transit ridership in Alexandria in FY 2019 (which includes Metrobus, Metrorail, and DASH rides in Alexandria)
Amount the City would compensate WMATA for a monthly unlimited pass per person	$43.45	$68 was the cost agreed upon for the DC Low-Income Fare Pilot. Cost adjusted to reflect Alexandria residents taking 63.9% of their trips on WMATA services (see row above).

Description	Assumption	Source/Notes
Number of program participants (riders ages 5 and over)	8,425	Total SNAP participants (9,554) from the City of Alexandria Department of Community & Human Services (DCHS). The percentage of SNAP recipients who are four and under (who would ride for free) was estimated using U.S. Census Bureau Table B17001, ACS 5-year estimates (11.8%), which identifies the number of children per household by income level. This number assumes all SNAP participants over age four would participate.
Program participant take-up rate in the Year 1	62.5%	Assumes that one-quarter of participants are phased in at the beginning of every quarter of Year 1. For all subsequent years, the rate is 100%.

Table 17 shows DASH's foregone revenue and the City's payments to WMATA for FY 2022 to FY 2025. DASH's foregone fare revenue ranges from $725,000 to $1.6 million, while the City would pay WMATA $2.7 million in FY 2022 and $4.4 million in subsequent years for monthly passes for program participants.

Table 17: Projected Foregone Fare Revenue and Payments to WMATA for Scenario 2, FY 2022–FY 2025

	FY 2022	FY 2023	FY 2024	FY 2025
DASH foregone revenue	$724,000	$1,170,000	$1,477,000	$1,641,000
Payments to WMATA for monthly passes	$2,745,000	$4,393,000	$4,393,000	$4,393,000
Total: Foregone revenue (DASH) and reimbursements to WMATA	**$3,469,000**	**$5,562,000**	**$5,870,000**	**$6,034,000**

Scenario 3: Half Price Fares for Low-Income Residents on DASH and WMATA

Like Scenario 2, DASH would lose fare revenue from the portion of rides that would have been taken by program participants under the Baseline scenario; however, under Scenario 3, DASH would also gain some revenue from induced trips that happen with a half-price fare, reducing the total amount of foregone fare revenue. As shown in **Table 18**, like under Scenario 2, it is assumed that the City would pay WMATA a flat rate for passes, but under Scenario 3, program participants can choose whether they purchase a pass or pay for half-priced rides individually. The City will reimburse WMATA for half-priced passes or half-priced rides based on program participants' choices. Based on responses in the 2013 DASH Rider Survey, about 14.5 percent of low-income riders pay using passes. This analysis assumes that with half-price passes, 50 percent of low-income riders would buy a pass and 50 percent would pay per ride. This analysis assumes that that riders who pay per ride would ride less frequently than riders who pay with a pass, and that they would take an average of 1.5 bus trips per week and four rail trips per month. These assumptions could have a large impact on payments due to WMATA.

Table 18: Figures and Assumptions Used in Developing Cost Estimates for Scenario 3

Description	Assumption	Source/Notes
DASH Passenger Fare per Passenger Trip	$1.14	DASH FY 2019 Passenger Fares and Ridership from NTD. Calculated from total ridership (including trolley ridership) and total passenger revenue.

Description	Assumption	Source/Notes
Percentage of Alexandria bus trips that happen on WMATA (Metrobus and Metrorail)	63.9%	Together, Metrobus and Metrorail ridership in Alexandria account for 63.9% of all transit ridership in Alexandria in FY 2019 (which includes Metrobus, Metrorail, and DASH rides in Alexandria)
Amount the City would pay WMATA for a half-price monthly unlimited pass per person	$21.72	$34 was the cost agreed upon for the DC Low-Income Fare Pilot. Cost reduced since Alexandria residents would take 63.9% of their trips on WMATA services (see row above).
Number of program participants (riders ages 5 and over)	8,425	Total SNAP participants (9,554) from the City of Alexandria Department of Community & Human Services (DCHS). The percentage of SNAP recipients who are four and under (who would ride for free) was estimated using U.S. Census Bureau Table B17001, ACS 5-year estimates (11.8%), which identifies the number of children per household by income level. This number assumes all SNAP participants over age four would participate.
Metrorail average fare revenue per trip	$2.33	From WMATA's NTD report, 2019
Percentage of low-income riders who would buy a discounted pass rather than pay per ride	50.0%	Assumed an increased number of low-income riders would buy a half-price pass (14.5% of low-income riders paid with a pass in the 2013 DASH Rider Survey)
Percentage of low-income riders who would pay per ride rather than buy a discounted pass	50.0%	Assumed an increased number of low-income riders would buy a half-price pass (14.5% of low-income riders paid with a pass in the 2013 DASH Rider Survey)
Average bus trips a rider paying per ride (rather than a pass) takes per week	1.5	2013 DASH Rider Survey
Average rail trips a rider paying per ride (rather than a pass) takes per month	4.0	Low-income riders less likely to take rail; two round trips per month assumed.
Program participant take-up in the Year 1	62.5%	Assumes that one-quarter of participants phased at the beginning of every quarter of Year 1. For all subsequent years, the rate is 100%.
Program participant take-up in Years 2-4	100%	Assume that all program participants would enroll in the first year.

Table 19 shows foregone fare revenue and payments to WMATA under Scenario 3. DASH's foregone revenue ranges from $317,000 to $658,000, while payments to WMATA are around $686,000 in the first year and $1.5 million for each subsequent year. It is worth noting that Scenario 3's payments to WMATA are not half of Scenario 2; in fact, they are slightly less than half. This is because Scenario 3 assumes that some participants purchase a pass and some (likely those who ride less) will pay per ride. The total costs range from about $1.3 million to $2.2 million across the four-year period.

Table 19: Projected Foregone Fare Revenue and Payments to WMATA for Scenario 3, FY 2022–FY 2025

	FY 2022	FY 2023	FY 2024	FY 2025
DASH				
DASH lost revenue	$362,000	$585,000	$739,000	$821,000
DASH gain in revenue for induced trips	$45,000	$116,000	$147,000	$163,000

	FY 2022	FY 2023	FY 2024	FY 2025
Total DASH Foregone Revenue	**$317,000**	**$469,000**	**$592,000**	**$658,000**
WMATA				
Payments to WMATA for half-priced passes	$686,000	$1,098,000	$1,098,000	$1,098,000
Payments to WMATA for half-priced single rides (bus and rail)	$278,000	$446,000	$446,000	$446,000
Total Payments to WMATA	**$965,000**	**$1,544,000**	**$1,544,000**	**$1,544,000**
Total: Foregone revenue (DASH) and reimbursements to WMATA	**$1,282,000**	**$2,013,000**	**$2,136,000**	**$2,202,000**

The implementation of fare capping, which is under review in the region, would alleviate the need for participants to choose between buying a pass or a single-ride fare by addressing the difficulty some low-income people face in affording even a half-price pass up front and preventing them from overpaying if they could not purchase the pass upfront. This could encourage further discussions between the City and WMATA regarding the structure of payments from the City to WMATA for foregone fare revenue on the WMATA system under this scenario, potentially shifting to the City paying the 50 percent difference on each trip taken by program participants.

Total Foregone Fare Revenue and Payments to WMATA

Table 20 summarizes the total foregone revenue-related costs for each scenario from FY 2022 to FY 2025. Scenario 2's costs are higher than Scenario 1 because all SNAP participants are expected to participate by FY 2023 and the City is assumed to be paying WMATA for monthly unlimited passes for all program participants, i.e., the cost is not based on fluctuations due to lower ridership during the pandemic. The cost of providing passes to participants to be used on the WMATA system represents the largest share of costs in Scenarios 2 and 3. However, the structure of these payments would be subject to further negotiation between the City and WMATA.

Table 20: Total Projected Foregone Fare Revenue and Payments to WMATA by Scenario, FY 2022–FY 2025

	FY 2022	FY 2023	FY 2024	FY 2025
Baseline Fare Revenue				
DASH	**$2,623,000**	**$3,912,000**	**$4,961,000**	**$5,512,000**
Scenario 1				
DASH–foregone fare revenue	$2,623,000	$3,912,000	$4,961,000	$5,512,000
WMATA–payments for passes	$0	$0	$0	$0
Total	**$2,623,000**	**$3,912,000**	**$4,961,000**	**$5,512,000**
Scenario 2				
DASH–foregone fare revenue	$724,000	$1,170,000	$1,477,000	$1,641,000
WMATA–payments for passes	$2,745,000	$4,393,000	$4,393,000	$4,393,000
Total	**$3,469,000**	**$5,562,000**	**$5,870,000**	**$6,034,000**
Scenario 3				
DASH–foregone fare revenue	$317,000	$469,000	$592,000	$658,000
WMATA–payments for passes and single rides	$965,000	$1,544,000	$1,544,000	$1,544,000
Total	**$1,282,000**	**$2,013,000**	**$2,136,000**	**$2,202,000**

Program Administration and Marketing

The cost analysis assumes that most administrative tasks to establish the fare program will be completed by current staff. Marketing costs are split into labor costs and the production of marketing materials. Marketing costs will vary slightly depending on the scenario. It is anticipated that Scenario 1, fare-free DASH service for all, will require less marketing than the targeted programs in Scenarios 2 and 3. Initial start-up costs that will only apply in the first year include the development and implementation of the marketing campaign, communicating with staff, and developing and printing promotional materials, which is estimated at 120 hours of staff time, resulting in a one-time cost of $5,700.[20] Marketing in subsequent years are expected to be half of the costs in the first year.

An overview of potential marketing activity types and their assumed *direct* costs (not including labor) by scenario is included in **Table 21**. The **Marketing** section included more information about lower- and no-cost strategies for marketing, which are not included in these estimates.

Table 21: Projected Direct Expenses for Administration and Marketing, FY 2022

	Scenario 1	Scenario 2	Scenario 3
Local radio and print ads	$3,700	$8,000	$8,000
Online advertisements	$3,700	$8,000	$8,000
Signs, flyers, and posters	$3,200	$5,300	$5,300
Total	**$10,600**	**$21,200**	**$21,200**

Program Impact on Operations

Induced demand under each scenario could necessitate additional service. Scenario 1 has the potential for the largest increase in ridership, with an estimated increase in DASH ridership of 23.1 percent, compared with 9.1 percent in Scenario 2 and 5.5 percent in Scenario 3 by FY 2025. Average passengers per vehicle trip on DASH in FY 2019 was 14.1, which is significantly below thresholds that would lead to concerns about crowding, although peak-period crowding is still a possibility.

For a clearer picture of crowding by time of day, boardings per revenue hour from FY 2018 were used to estimate the boardings per revenue hour in FY 2025 for the busiest routes, the AT1 and AT8, under Scenario 1, which has the highest expected increase in DASH ridership (an effective 23.1 percent increase over FY 2019 ridership), as shown in **Table 22**.

Table 22: Existing and Projected Boardings Per Revenue Hour for Routes AT1 and AT8, FY 2025

	FY 2018		Projected FY 2025 Under Scenario 1	
	AT1 (Line 35)	AT8 (Line 30)	AT1 (Line 35)	AT8 (Line 30)
5:00 AM	12.1	14.4	14.9	17.7
6:00 AM	12.0	17.1	14.8	21.0
7:00 AM	14.2	22.0	17.5	27.1
8:00 AM	15.3	32.2	18.8	39.6
9:00 AM	24.5	26.5	30.2	32.6
10:00 AM	18.1	18.9	22.3	23.3

[20] The assumed hourly cost of marketing labor was $44.73, based on Wage Estimates from the U.S. Bureau of Labor Statistics (BLS).

	FY 2018		Projected FY 2025 Under Scenario 1	
11:00 AM	16.5	18.9	20.3	23.3
12:00 PM	19.1	21.1	23.5	26.0
1:00 PM	19.9	20.2	24.5	24.9
2:00 PM	16.4	22.8	20.2	28.1
3:00 PM	15.4	20.6	19.0	25.4
4:00 PM	18.0	19.5	22.2	24.0
5:00 PM	17.4	21.3	21.4	26.2
6:00 PM	14.8	22.0	18.2	27.1
7:00 PM	29.2	25.0	35.9	30.8
8:00 PM	20.7	20.4	25.5	25.1
9:00 PM	10.0	23.1	12.3	28.4
10:00 PM	22.4	29.3	27.6	36.1
11:00 PM		28.5		35.1

In FY 2025, with this increase in ridership, the AT1 would experience only one hour, 7:00 p.m., during which boardings would be above 35 per hour—a level that, even in non-pandemic times, would indicate significant crowding. The AT8 would experience three hours with average boardings at or above 35 boardings per hour: 8:00 a.m., 10:00 p.m., and 11:00 p.m. However, DASH is planning to improve AT8 off-peak and weekend frequencies by FY 2024, which should mitigate any future capacity concerns on the Duke St corridor.

Both the AT1 and the AT8 will undergo changes due to ATV Plan in FY 2022. The AT8 will become known as Line 30 and retain existing service levels, while the AT1 will be replaced by Line 35 on a similar alignment with major increases in service frequency throughout the day.[21] It is likely that this more frequent service would largely alleviate any potential crowding-related challenges. However, DASH will continue to monitor boardings per vehicle trip by hour to determine where adjustments may be needed. It is likely that DASH would be able to address any crowding issues in a cost-neutral manner by adjusting on other routes as needed. Therefore, the cost analysis does not assume that any of the fare program scenarios will necessitate additional operating funding for DASH (above the planned service levels).

DASH is entering the design phase for a major facility expansion that will provide room for 35 additional buses, which will allow more flexibility in addressing service needs. DASH also has plans to expand its active fleet by 26 buses in the next decade from grant funding opportunities. Consequently, DASH is well-positioned to address any additional service capacity or fleet storage increases that might be needed from increased ridership demand resulting from reduced or eliminated fares.

In addition, removing fares in Scenario 1 has the potential to reduce dwell time since passengers can board more quickly, which also has the potential to improve on-time performance. This can result in intangible benefits, like better customer experience when customers do not have to wait for their bus, or tangible cost savings when extra runs are not needed because buses run behind schedule or bunch less frequently.

[21] City of Alexandria, Alexandria Transit Vision, https://www.alexandriava.gov/tes/default.aspx?id=104193.

Cost Summary

Total Costs

Table 23 shows the costs for all three scenarios by year from FY 2022 to FY 2025. Foregone fare revenues, combined with the money that the City would reimburse WMATA for foregone fare revenue from free/discounted passes and fares in Scenarios 2 and 3, are the major driver in determining costs.

In every year, Scenario 2 is the most expensive program and has the largest amount of foregone fare revenue as it calls for free fares on both systems (DASH and WMATA) for low-income riders. However, there is potential to reduce these cost by adding a monthly opt-in (or pass "trigger") process for program participants to bring costs down by only paying for passes that will be used during any given month, as well as an option for the city to cap the number of program participants, which would lower the cost of Scenarios 2 and 3. Scenario 3, which had the smallest amount of foregone DASH fare revenue but over $1.5 million in payments to WMATA, is the least expensive scenario. Scenario 1 is between Scenarios 2 and 3 in terms of overall cost, with the costs for Scenario 1 increasing significantly (and approaching the estimated cost of Scenario 2) as ridership is assumed to recover after the pandemic (resulting in more foregone fare revenue). Under Scenarios 2 and 3, the number of program participants is anticipated to stay constant.

Table 23: Total Projected Cost by Scenario, FY 2022–FY 2025

Costs	FY 2022	FY 2023	FY 2024	FY 2025	Total 4-Year Costs, FY 2022 – FY 2025
Baseline					
Capital Costs of Fare Collection	$175,000	$180,000	$186,000	$191,000	**$732,000**
Operating Costs of Fare Collection	$268,000	$276,000	$284,000	$293,000	**$1,121,000**
Fare Media Costs	$6,300	$10,000	$12,800	$14,000	**$43,600**
Total	**$449,000**	**$466,000**	**$483,000**	**$498,000**	**$1,897,000**
Scenario 1					
Foregone Fare Revenue	$2,623,000	$3,912,000	$4,961,000	$5,512,000	**$17,008,000**
Marketing Costs	$16,300	$5,500	$5,600	$5,800	**$33,200**
Total	**$2,639,000**	**$3,918,000**	**$4,967,000**	**$5,518,000**	**$17,042,000**
Net Increase over Baseline Scenario	**$2,190,000**	**$3,452,000**	**$4,484,000**	**$5,020,000**	**$15,145,000**
Scenario 2					
Foregone Fare Revenue and payments to WMATA	$3,469,000	$5,562,000	$5,870,000	$6,033,000	**$20,936,000**
Capital Costs of Fare Collection	$175,000	$180,000	$186,000	$191,000	**$732,000**
Operating Costs of Fare Collection	$268,000	$276,000	$284,000	$293,000	**$1,121,000**
Fare Media Costs	$32,800	$34,300	$36,000	$37,000	**$140,000**
Marketing Costs	$26,900	$10,900	$11,300	$11,600	**$61,000**
Total	**$3,972,000**	**$6,064,000**	**$6,387,000**	**$6,567,000**	**$22,989,000**

Costs	FY 2022	FY 2023	FY 2024	FY 2025	Total 4-Year Costs, FY 2022 – FY 2025
Net Increase over Baseline Scenario	**$3,523,000**	**$5,598,000**	**$5,904,000**	**$6,069,000**	**$21,092,000**
Scenario 3					
Foregone Fare Revenue and payments to WMATA	$1,282,000	$2,013,000	$2,136,000	$2,202,000	**$7,632,000**
Capital Costs of Fare Collection	$175,000	$180,000	$186,000	$191,000	**$732,000**
Operating Costs of Fare Collection	$268,000	$276,000	$284,000	$293,000	**$1,121,000**
Fare Media Costs	$32,800	$34,300	$36,000	$37,000	**$140,000**
Marketing Costs	$26,900	$13,900	$14,300	$14,700	**$69,800**
Total	**$1,784,600**	**$2,517,000**	**$2,656,000**	**$2,737,000**	**$9,695,000**
Net Increase over Baseline Scenario	**$1,335,600**	**$2,051,000**	**$2,173,000**	**$2,239,000**	**$7,798,000**

Under Scenarios 2 and 3, if only 5,000 SNAP beneficiaries receive and use passes, the total projected costs for the program for FY 2022 would be $2.8 million and $1.4 million, respectively (including the cost of fare collection). These amounts would be projected to increase to $4.8 million and $2.1 million, for Scenarios 2 and 3 respectively, in FY 2025.

Cost per Intended Beneficiary

The purpose of the fare program is to benefit low-income residents in the City of Alexandria. This section compares the total cost of each proposed scenario in relation to the number of low-income beneficiaries using expected total program costs in FY 2025 (the year in which bus ridership is projected to return to pre-pandemic levels). Each scenario provides different benefits (both qualitative and quantitative) as well as cost to the City, as described below. This cost analysis reflects the fact that the benefits to program participants will be greater as the City invests more money in the program.

- **Scenario 1:** Beneficiaries could be considered all low-income riders (over the age of four) in the City of Alexandria (18,100) who would pay a fare under the Baseline Scenario. These beneficiaries receive free rides on DASH at an annual **estimated cost of $304 per beneficiary**. Due to only a portion of those individuals riding transit, the cost per *likely* beneficiary would be higher; for example, if only 60 percent of low-income residents used the DASH system, for example, it would be closer to $500 per beneficiary. On the other hand, ***it is important to note that the benefits under this scenario would extend to the entire population of DASH riders in the City. This is a significant consideration, as there are many City residents who do not qualify for SNAP assistance but still have low enough incomes that reducing their expenditures on transit would significantly lesson their economic hardships***.[22] This scenario has the drawback, however, of not making usage of Metrobus and Metrorail any less expensive for low-income riders. However, updated service under ATV provides more direct access to low-income riders in the City, with 89 percent of low-income residents within a quarter mile of all-day transit under ATV's 2030 plan (73 percent under the ATV 2022 plan) compared with only 29 percent under the current system.

[22] In the City, there are over 33,000 individuals from households earning less than 200 percent of the FPL, which is the equivalent of about $25,000 per year for a single-person household and $51,500 for a four-person household.

- **Scenario 2:** Beneficiaries are considered all program participants (all SNAP benefit recipients) who would pay a fare (i.e., are over the age of 4) in the City of Alexandria (8,425). These beneficiaries receive free rides on DASH, Metrobus, and Metrorail at an **estimated annual cost of $779 per beneficiary**. This scenario results in costs that are more than double those of Scenario 3 due in part to higher induced demand from fares being free rather than discounted. Scenario 2, vis-à-vis Scenario 1, offers the benefit of enabling beneficiaries to choose the service that best meets their travel needs, regardless of operator.
- **Scenario 3:** Beneficiaries are considered all program participants (all SNAP benefit recipients) who would pay a fare (i.e., are over the age of 4) in the City of Alexandria (8,425). These beneficiaries receive half-priced rides on DASH, Metrobus, and Metrorail at an **estimated annual cost of $325 per beneficiary**. Scenario 3 also offers the benefit of enabling beneficiaries to choose the service that best meets their travel needs, regardless of operator.

Phased Implementation

Any of these scenarios could first be implemented as a pilot program. A pilot program, especially for Scenarios 2 and 3, would enable observation of participation and usage rates, which could determine the feasibility for long-term implementation and financial sustainability of the program. The pilot could be designed to run for a certain number of months and/or could set a cap on the total number of program participants, reducing uncertainty for the City regarding the program's cost. After collecting data about usage from a pilot, the City and WMATA would have more information to inform the reimbursement formula. If usage levels are low, for example, the City would be well-positioned to negotiate a lower cost per pass or different reimbursement structure based on actual usage.

TRAFFIC IMPACTS

In TCRP Synthesis 101, many agencies implementing fare-free programs had a stated goal of reducing traffic congestion.[23] However, this report did not include data about the impact of fare-free service on traffic congestion and called for a more in-depth study of the impact of increased transit ridership on traffic congestion.

Some recent research indicates that reduced and/or fare-free programs have a limited impact on traffic congestion. In Europe, a study in Tallinn, Estonia showed a three percent drop in car trips in the three years after the city made public transit free.[24] That study also noted that the Tallinn transit system had not undergone an update to ensure it was effectively meeting the needs of potential riders, implying that the drop in car trips could have been larger if there were better transit options available for more residents. A study in Brussels, Belgium found there is modest potential to decrease traffic congestion with fare-free transit, but did not attempt to quantify the exact impact.[25] In Santiago, Chile, researchers found that randomly assigning a fare-free, two-week unlimited two-week transit pass to workers did not have a significant reduction in car trips among pass recipients, possibly because study participants may have already been transit riders.[26]

In the U.S., Los Angeles Metro launched a study in 2020 to understand the impact of a fare-free system while also conducting a Traffic Reduction Study to determine the feasibility of a traffic reduction program. However, the results of these studies are not yet known.[27] A 2020 study in California determined that fare-free programs

[23] TCRP, Implementation and Outcomes of Fare-Free Transit Systems, 2012, https://www.nap.edu/download/22753.
[24] Oded Cats, Yusak Susilo, and Triin Reimal, The prospects of fare-free public transport: evidence from Tallinn, April 2016, https://link.springer.com/content/pdf/10.1007%252Fs11116-016-9695-5.pdf.
[25] Wojciech Kębłowski, Fare-free public transport: critical lessons from multiple sites, accessed February 2021, https://innoviris.brussels/sites/default/files/documents/innoviris_prospective_research_policy_brief_wojciech_keblowski.pdf.
[26] Owen Bull, Juane Carlos Muñoz, Huge E. Silva, The impact of fare-free public transport on travel behavior: Evidence from a randomized controlled trial, January 2021, https://www.sciencedirect.com/science/article/abs/pii/S016604622030301X?dgcid=rss_sd_all#!.
[27] Metro, Fareless transit: A Q&A on Metro's study to eliminate fares, September 2020, https://thesource.metro.net/2020/09/11/fareless-transit-a-qa-on-metros-study-to-eliminate-fares/.

are not very effective in shifting drivers to transit unless they are coupled with other measures that increase the cost of driving such as tolling or parking pricing,[28] which are not expected to occur as part of the City of Alexandria's free or discounted fare program.

Based on these studies, it is does not appear likely that the City's low-income fare program alone would lead to a significant reduction in traffic in the City. However, it is possible that the program, especially under a fare-free scenario (Scenario 1) in combination with the City's ATV implementation (which will significantly increase residents' access to all-day transit options) and many existing master plans that support transit-oriented development, could slow the rate at which traffic congestion in the City increases over the long term.[29]

PROGRAM EVALUATION

Understanding the impact of the City of Alexandria's low-income fare program is important for determining whether the program goals are being met, what tangible benefits the program has achieved, and whether any changes in direction or approach may be needed. It is recommended that the City implement a performance monitoring/evaluation element of the program, with tracking of key performance measures done at least annually. Results from the program evaluation should be shared with, at a minimum, all agencies that contribute to the program, as well as with decision-makers who are responsible for determining the program's level of financial support. It is also recommended that the City monitor the results from the DC Low-Income Fare Pilot[30] to identify any findings that would be relevant in making decisions about its own fare program.

The TRIP program is a statewide grant program that focuses on improving regional connectivity and supporting low-income and zero-fare initiatives.[31] The TRIP program is relevant to any of the three scenarios under consideration, as its zero fare and low-income initiative, which accounts for 25 percent of program funds, includes free passes to low-income populations, subsidized passes to low-income populations, and zero-fare systems. TRIP will focus on applicants who have well-researched programs that are collaborative and developed with partnerships that are ready to be implemented.

Recommended Performance Measures for Program Evaluation

Performance measures used in program evaluation should relate to the goals that the program seeks to achieve. Two types of performance measures–output and outcome–can and should be used as part of this program evaluation. Output measures address the direct actions taken to further the program. Agencies generally have more direct control over performance related to output measures. Outcome measures reflect concerns of the public and stakeholders; these are often the most meaningful to the public and relate most directly to program goals. However, they may be influenced by a range of factors beyond the City's control.

Table 24 shows a list of performance measures recommended for the City to track to evaluate the program's success and indicates whether each measure is an outcome or output measure, the estimated level of effort (low, medium, high) to calculate or track the measure annually, and the program goals to which the measure relates. For measures that the City already tracks (e.g., ridership), the estimated level of effort is assumed to be low.

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[28] University of California, Irvine, A Review of Reduced and Free Transit Fare Programs in California, January 2020, https://escholarship.org/uc/item/74m7f3rx.

[29] For example, see: Reid Ewing, Keith Bartholomew, Steve Winkelman, Jerry Walters, and Don Chen, *Growing Cooler*, 2007, https://www.nrdc.org/sites/default/files/cit_07092401a.pdf. The MWCOG travel demand model, prior to the COVID-19 pandemic, projected that traffic congestion will worsen throughout the Washington, DC metropolitan area over the coming decades. The model projects that significant investments in transit, in general, will not reduce the total level of traffic congestion; rather, they are likely to reduce the extent to which traffic congestion worsens. However, there is also potential for technology-related changes such as the implementation of automated and connected vehicles to significantly improve traffic congestion; likely impacts of these technologies are largely speculative at this point in time.

[30] For more information, see: https://www.wmata.com/about/board/meetings/board-pdfs/upload/3C-DC-Low-Income-Fare-Pilot-v2.pdf.

[31] Virginia Department of Rail and Public Transportation. TRIP Program Overview and RFI Discussion: http://www.drpt.virginia.gov/media/3242/drpt-trip-rfi-webinar-updated-1.pdf

Table 24: Recommended Performance Measures for Evaluating the City's Low-Income Fare Program

Performance Measure	Output/ Outcome	Level of additional effort to calculate/ track	Goal: Access for low-income riders	Goal: Enhance equity and access	Goal: Maintain/ enhance operations and safety	Goal: Minimize admin. burden and costs	Goal: Advance regional coordination on fares
Total number of program participants	Outcome	Low	X	X			
Number of program participants relative to low-income population	Outcome	Low	X	X			
Number of trips taken by program participants	Outcome	Low	X	X			
Total system ridership	Outcome	Low	X	X			
System ridership during off-peak periods	Outcome	Low	X	X			
Monetary savings by program participants	Outcome	Medium	X	X			
Number of eligible individuals informed about the program*	Output	Medium	X	X		X	
Processing time from application to certification*	Output	Medium	X	X		X	
Number of advertisements placed and collateral distributed to inform people about the program*	Output	Medium	X	X			
Participant feedback regarding the program's impact on their access to jobs and opportunities (qualitative)	Outcome	High	X	X			
On-time performance	Outcome	Low			X	X	
Crowding on buses	Outcome	Low			X	X	
Operator feedback regarding operational impacts of the program (qualitative; applies primarily to Scenario 1)	Outcome	High			X		
Cost to the City of operating the program	Outcome	Medium				X	
Costs to the City of operating the program per trip made by a low-income rider	Outcome	Medium	X	X			
Costs of program to the City per low-income resident	Outcome	Medium	X	X			
Farebox recovery rate	Outcome	Low				X	
Operating cost per trip (system-wide)	Outcome	Low				X	
Applicability to services beyond the DASH system	Outcome	Low					X
Expansion of the program to other jurisdictions	Outcome	Low					X

**Applies to Scenarios 2 and 3 only.*

These performance measures, taken together and tracked, would paint an informative picture about the impact of the program. Most of the measures are reasonably straightforward to track. The less straightforward measures, in general, are those that rely on information provided through surveys.

Survey-Based Measures

Qualitative information can be valuable in evaluating a program's success. The performance measures identified in **Table 24** as having a "high" level of effort are those that depend on surveys to collect data. Two types of surveys are recommended for gathering information about the program's performance–rider and operator surveys. These are each described below.

Rider Surveys

It is recommended that the City conduct surveys of program participants to gauge how the program is impacting their travel, finances, job prospects (if applicable) and quality of life. For Scenario 1, a survey of all DASH riders would be appropriate; for the other two scenarios, a more targeted survey effort to get the input exclusively of program participants would be more appropriate. In years when DASH on-board surveys are conducted, under Scenario 1, questions could be added to the survey to support evaluation of the fare program (as opposed to conducting a separate survey). Under Scenario 1, in years when an on-board survey is not conducted, information about how to complete an online version of the survey could also be posted on buses, at bus stops, rail stations, libraries, City government offices, and community centers. Under Scenarios 2 and 3, a program participant survey could be emailed and mailed to program participants to gather this input, and/or administered when people visit DCHS to discuss their benefits with a case worker. Recommended questions for an annual program participant survey include:

- [If necessary/applicable] Do you use a [name of program card] to ride transit?
- How often do you ride the bus or train (DASH, Metrobus, and/or Metrorail)? (Multiple choice; question asked for each service.)
- How often did you take transit (DASH, Metrobus, and/or Metrorail) before participating the program? (Multiple choice; question asked for each service.)
- What are the trip purposes you travel by transit for? (Multiple choice.)
- How would you get around if fares weren't [discounted/free]? (Multiple choice.)
- Has the program made it easier for you to afford other expenses such as food, housing, or medical care? (Yes/No.)
- How has the program made your life easier (if at all)? (Open-ended.)
- Demographic questions (Questions with options for age, gender, race, and space to provide home zip code.)

If desired to enable longitudinal comparisons, question formats or phrasing could be adjusted to be consistent with DASH's on-board survey.

Operator Surveys

Because bus operators are on the front lines and most frequently interact with customers, they usually have valuable insights into the on-the-ground impacts of fare changes. It is recommended that the City conduct surveys of DASH bus operators, particularly under Scenario 1, as the program is rolled out (and possibly another time if/as ridership significantly increases following the pandemic) to gauge how well the program appears to be working from operators' perspectives. The operator survey could be emailed to operators and made available in operator break facilities (via tablet and/or paper). Recommended questions for the bus operator survey include:

- Do the routes you operate regularly experience crowding (the number of riders exceeding available seats)? (Yes/No.)
  - If Yes, which routes and at what times? (Open-ended.)

- Has the program reduced the number of negative interactions you have with passengers?
- Have you spoke with riders about the program? (Yes/No.)
  - If Yes, what have they said? (Open-ended.)
- Do you have any other comments for management's consideration related to the program?

Pilot Program Evaluation

Since any of these scenarios could first be implemented as a pilot program, evaluating the costs and benefits of the pilot would be especially beneficial. The main purpose of a pilot would be to assess the effectiveness of the program, as well as identify whether the cost of the program is sustainable for the long-term. The evaluation of a pilot program would not need to be as intensive as the full program evaluation outlined above but would likely focus heavily on participation and usage rates, as well as operational impacts, the latter particularly under Scenario 1. A survey of riders (under Scenario 1) and program participants (under Scenario 2 and 3) for the pilot would also be valuable to gauge the qualitative impact of the fare change.

In Scenario 1, this would mean tracking total ridership and evaluating crowding issues, especially at peak times. This would also mean evaluating bus on-time performance and bus bunching, since all-door boarding and lack of fare collection could reduce dwell time.

In Scenario 2, this would mean identifying the total number of pass recipients and tracking the total trips that they take using their passes. The amount that the City reimburses WMATA under a long-term agreement would be subject to evaluation of actual usage patterns from the pilot. In addition, if not done already, evaluating the pilot would be an opportunity for the City to reconsider additional activation requirements if some participants receive but do not use passes.

In Scenario 3, this would mean tracking participation rates and total trips taken by participants. This would be an opportunity to evaluate whether the program participation is sufficiently high, and whether the administrative complexity or the up-front cost of a pass remain burdens to potential participants.

CONCLUDING SUMMARY

The key cost and ridership findings for each scenario are summarized in **Table 25** for FY 2025.

Table 25: Projected Ridership and Cost Summary by Scenario, FY 2025

	DASH Ridership (Trips)	All Transit Ridership in the City (DASH + WMATA Trips)	Net Cost Increase over Baseline	Beneficiaries (Potential Low-Income* Program Participants)	Cost per Beneficiary
Baseline Scenario	5.2 million	11.2 million	-	-	-
Scenario 1: Free fares for all DASH riders	6.4 million (23.1% increase)	12.5 million (11.2% increase)	$5.0 million	18,100	$304
Scenario 2: Free fares for low-income riders on DASH and WMATA	5.7 million (9.1% increase)	12.2 million (8.3% increase)	$6.1 million	8,425[32]	$779

[32] Represents total SNAP participants. Because participation levels are unknown, this number is most likely to range from 5,000 to 10,000. The final report contains information about cost implications (ranges) based on the potential range of participants for Scenarios 2 and 3.

	DASH Ridership (Trips)	All Transit Ridership in the City (DASH + WMATA Trips)	Net Cost Increase over Baseline	Beneficiaries (Potential Low-Income* Program Participants)	Cost per Beneficiary
Scenario 3: Half-price passes and fares for low-income riders on DASH and WMATA	5.5 million (5.5% increase)	11.8 million (5.0% increase)	$2.2 million	8,425	$325

**Those from households with incomes at or below 130 percent of FPL.*

In addition to these ridership and cost estimates, there are some key considerations that should be taken into account:

- Under Scenario 1, not all 18,100 individuals who are SNAP-eligible would benefit because some do not ride transit. On the other hand, the benefit under this scenario would be realized by many residents who do not qualify for SNAP but still have low incomes (as well as all non-low-income riders); over 33,000 City residents are from households with incomes under 200 percent of the FPL. Therefore, the cost per beneficiary would likely be higher than $304 per person, but including the number of low-income beneficiaries, by expanding the definition of "low-income" to up to 200 percent of the federal poverty level, would make this per-beneficiary cost figure significantly lower.
- Scenario 1 (free fares for all DASH riders) would be the easiest for the City to implement and would have the added benefit of removing some administrative cost and complexity. It is estimated DASH would realize average savings of $450,000 annually by not collecting fares, not including staff time for tasks like fare planning and SmarTrip reconciliation that would no longer be required.
- Scenario 1 is also the easiest to use for participants, who do not need to prove eligibility in order to ride for free.
- Scenario 1 could improve operational performance of the DASH system by reducing dwell time associated with collecting fares.
- Scenario 1, in which one provider offers free service, reduces regional consistency and is therefore not consistent with the Bus Transformation Project (BTP)'s vision of a more integrated bus network with a unified fare policy throughout the region.
- Scenarios 2 and 3 have the benefit of providing program participants free or discounted access to whichever transit services (between DASH, Metrobus, and Metrorail) best meet their travel needs.
- Exact cost figures will depend on the cost allocation agreement reached between the City and WMATA.